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THE AMERICAN NEPTUNE

A QUARTERLY JOURNAL OF MARITIME HISTORY

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THE AMERICAN NEPTUNE

A Quarterly Journal *of Maritime History*

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SINCE *the publication of the last issue of this journal the war in Europe has been brought to a victorious conclusion and American forces are already being redeployed towards the Pacific. Remote as the scenes of the final stages of the war in the Far East may seem to many Americans of* 1945, *they have always been familiar to American seamen. Witness the ease with which the recent mighty amphibious advances of the United States Pacific Fleet can be followed with the blue-backed charts upon which nineteenth-century Maine shipmasters traced their courses. Take, for example, the portion of a chart reproduced in the* NEPTUNE *for April* 1942 *showing the track of the* Vigilant *through the Eastern Passages and around Luzon to Manila, upon which (if your eyes are sharp enough to compensate for the reduction in scale) you will readily find Morotai (alias Morty), the Palau Islands, Surigao Strait, Leyte, Samar, San Bernardino Strait, Mindoro, Lingayen Gulf, Manila Bay and the scenes of other naval operations of the past autumn and winter. Thus readers of the* NEPTUNE *will, in following the course of the war, meet again in new connections, places already familiar to them. Zamboanga, where Captain Simmons salved the ship* Crystal Palace *in* 1858, *was captured in May* 1945. *In recent weeks Admiral Kinkaid's Seventh Fleet has been*

putting troops ashore on Borneo, which the U. S. frigate Constitution *visited in* 1845. *With the liberation of the Netherlands East Indies, like the liquidation of other Japanese conquests, now only a matter of time, the present publication of Captain George W. Putnam's account of his voyage from Boston to Batavia, Java, in* 1833 *gives still another instance of the familiarity of American seamen with the current theatres of war. To Captain Putnam the voyage was in no sense an extraordinary adventure. He described it to his sisters as casually as a trip to New York, with homely details concerning his little dog and the amenities of his cabin.*

The request for information made in the April issue concerning lightvessels has brought forth two replies, which are printed in the Queries and Answers *section. If sufficient interest is manifested by readers, the Editors would gladly consider reproducing in future issues certain of the drawings described by Lieutenant Brewington. It is hoped that further contributions on this subject may yet be submitted.*

'The Fleet'

BY SIDNEY G. MORSE

IN the year 1777 there occurred in New England an episode which made vividly clear many of the problems of American naval power in the Revolutionary War. In the spring of that year British sea power was as usual making life miserable along the American coast, threatening serious injury especially to the economy of New England, dependent as that region was on maritime activity. And it was feared that large shipments of munitions and military supplies due to arrive soon from France would be intercepted.[1]

The Americans had, despite misgivings in certain quarters, striven with commendable energy to create sea power of their own; but the net result as of the spring of 1777 was disappointing, to say the least. Probably little had been expected of the tiny fleet of converted merchantmen that Commodore Esek Hopkins had led to the Bahamas early in 1776—despite the magnificently unrealistic orders issued to that unfortunate commander by the Naval Committee of Congress. Since its return the squadron, bedeviled by lack of men and supplies, had disintegrated. The remnants of it were bottled up in Narragansett Bay by the British occupation of Newport at the close of 1776.

Far greater hopes had been placed upon the relatively ambitious naval construction program inaugurated by Congress in December 1775; it provided for thirteen real men-of-war, frigates of from 24 to 32 guns, to be built at the principal seaports along the coast. As early as May 1776 the first of these vessels had been launched amid great enthusiasm at Portsmouth, New Hampshire.[2] But she had still, almost a year later, not gone to sea or fired a gun for the American cause—nor had any of her sister frigates. The failure was uniform, although the causes were varied. The *Raleigh* at Portsmouth still lacked most of her 32 guns. The *Trumbull*, 28,

[1] Draft of a letter from the General Court of Massachusetts to the Continental Congress, 7 May 1777, telling of plans for 'the Fleet'; Massachusetts Archives, CXCVII, 23.

[2] *Boston Gazette*, 3 June 1776.

built at New London, remained idle because of an embarrassing inability to devise a method of floating her over the bar at the mouth of the Thames River. The *Warren*, 32, and *Providence*, 28, were also completed; but they were blockaded by the enemy in upper Narragansett Bay. The *Virginia*, 28, was ready at Baltimore, but the British blockade of the Capes did not allow her to emerge from Chesapeake Bay during the entire year (1777). The *Randolph*, 32, one of four frigates under construction at Philadelphia, sailed in February 1777 convoying ships bound for the West Indies. The passage was hardly well begun when the vessel was dismasted in a storm (a not infrequent accident to American vessels during the war, caused by the poor quality of available rigging materials) and obliged to put into Charleston for a complete refit. The remaining three frigates at Philadelphia (*Washington*, 32, *Effingham*, 28, *Delaware*, 24) were not yet finished. The two contracted for at New York (*Montgomery*, 28, and *Congress*, 24) were sealed up in the Hudson River by the British hold on its mouth, which was destined to last throughout the war. There remained the *Hancock*, 32, and *Boston*, 24, outfitting at Boston. We shall come to their story directly.[3]

Truly, events seemed to have vindicated those who had argued against any attempt to build an American navy on the ground that the pressure of Britain's overwhelming sea power already in existence would make such an effort futile.

The burden of naval defense did not rest exclusively upon the Continental navy: there were also the state 'navies.' In New England that of Massachusetts was the strongest; in the spring of 1777 it included four new brigs, of which three were away cruising in European waters. The active Connecticut navy consisted of the brig *Defence*, 16. Rhode Island, as already seen, could take little part in naval operations with Narragansett Bay closed to her vessels. New Hampshire apparently had nothing to offer.[4]

What about the most numerous of all armed vessels available to the Americans: the privateers? Those operating from New England ports were for the moment in virtually complete eclipse. Sanguine opinions, some of them short-sighted if not disingenuous, had been ventured as to the valuable services this species of naval militia would render. One not entirely

[3] On the early history of the Continental navy: G. W. Allen, *A Naval History of the American Revolution* (Boston, 1913), chapters ii-v, vii. On the status of the thirteen frigates early in 1777: ibid., I, 195-199, 222-223; and Wharton, *Revolutionary Diplomatic Correspondence of the United States*, II, 236.

[4] Allen, *Naval History*, I, 42, 132-133, 234-236, 238. Louis F. Middlebrook, *Maritime Connecticut during the American Revolution* (Salem, 1925), I, 49, 51.

disinterested prophet declared that the private armed vessels would 'annoy our enemies, supply ourselves with the foreign necessaries of life . . . , and discipline a nursery of seamen by which we may soon be a formidable nation by sea as well as by land.' The third of these arguments, although it was to prove utterly without foundation, seems to have impressed so shrewd a judge as Benjamin Franklin.[5]

Fully unleashed by the Continental resolutions of April 1776 the privateers had swarmed out and had a field day. The effects had not been as happy as anticipated; by the close of the year the private men-of-war were catching it from all sides, as bitter critics denounced them for hindering rather than aiding the war effort. In a general way they were damned for stimulating selfish greed and weakening the patriotic spirit of '76. A neighbor of John Adams summed up the feelings of many people when he wrote, noting the apparently large profits from privateering:

> With what unexampled Expedition were innumerable Vessels of war fitted and dispatched to cruise upon our Enemies, which soon returned, with their property captured, to an immense amount of Value! — But, have these almost miraculous Smiles of Providence been improved to the End and Purpose for which they were *apparently* bestowed? — Has such an astonishing Increase of Substance excited Gratitude to the *Donor*, and given fresh Life and Vigor to our Exertions for the publick Safety? Have not the numerous Prizes . . . rather proved *like so many stakes at a gaming Table*, for unprincipled Traders, avaricious monopolizers and Sharpers of every Denomination to shuffle and cut for?[6]

Of more immediate menace to the conduct of the war was the direct competition for men and materials between the privateers and the regular services. The former seemed to get more than their fair share of the scanty supplies available in America, so that the fitting out of Continental ships was often long delayed. In at least one notorious instance materials ordered for Continental frigates were actually used for privateers — the diversion being facilitated by the fact that the gentlemen in charge of the construction of the frigates happened also to be leading privateer owners.[7] Most damaging, however, was the way in which privateering made virtually impossible the manning of the Continental ships. Larger shares in prizes; greater opportunities to capture prizes; freedom from naval disci-

[5] Josiah Batchelder, Jr., to the Massachusetts Council, 13 August 1776; Massachusetts Archives, CLXV, 49. *Revolutionary Diplomatic Correspondence*, II, 286.

[6] Josiah Quincy, Braintree, to John Wendell; Hess-Wendell Papers (manuscripts in the Massachusetts Historical Society). See a letter written in similar vein published in the *Boston Gazette*, 27 January 1777.

[7] William Ellery to Governor Cooke, 21 September 1776; Rhode Island Archives, Letters, Series I. VIII, 69.

pline—all these advantages endowed privateering with a glamor which not only led most men to prefer it in the first place, but also lured many Continental sailors to regret their choice and desert their posts for privateering cruises.

Aroused by these conditions there grew an eventually irresistible demand that privateering be checked so as to give the public services a chance. John Paul Jones, who had a run-in with some privateer owners in Rhode Island involving him in a lawsuit not settled until near the end of the war, held forth on the subject in his inimitable style, excoriating the 'shameful abuses which hath been too long practised upon the Navy by Mercenaries whose governing Principle hath been that of self interest.' Commodore Hopkins vainly sought to persuade the Rhode Island authorities to lay an embargo, being thwarted, as he believed, by the direct intervention of certain influential privateer owners. More effective was General Charles Lee's appeal on behalf of the Army.[8] The feeling that finally prevailed was evidently that eloquently expressed by a member of Congress:

> Many of the Continental troops now in our service pant for the expiration of their enlistments, in order that they may partake of the spoils of the West Indies . . . New England and the Continent cannot spare them. They have a right at this juncture to their services and to their blood. We must have an Army; the fate of America must be decided by an Army.[9]

The upshot was that Massachusetts laid a general embargo on shipping early in December 1776, and the other New England states quickly followed suit.[10] Throughout the winter and until far into the spring of 1777, the Yankee privateers were held in check.

Such was the situation in the spring of 1777: Continental ships unready for one reason or another; state navies negligible; the privateers in Coventry for their sins. Meanwhile the British frigates prowled the coast unchallenged. Most troublesome among them was the *Milford*, which had been assigned to the patrol of the Massachusetts coast since early in the hostilities. She was reported 'continually cruising between Cape Cod and Cape Ann,' capturing numerous vessels.

[8] Jones to the Navy Board for the Eastern Department, 21 January 1777; John Paul Jones Papers (manuscripts in the Library of Congress). Hopkins to the president of the Marine Committee, 2 November 1776; A. S. Beck, editor, *Letterbook of Esek Hopkins* (Providence, 1932), p. 91. Lee to Governor Cooke, 28 November 1776; Rhode Island Archives, Letters, Series I, VIII, 105. Copies were also sent to the other New England states.

[9] Benjamin Rush to Richard Henry Lee, 21 December 1776; quoted in Rupert Hughes, *George Washington* (New York, 1930), III, 11.

[10] Massachusetts Archives, CCXI, 350. *New Hampshire State Papers*, VIII, 454, 456. *Connecticut State Records*, II, 123, 597. Since her waters were effectively blockaded by the enemy, there was little need for Rhode Island to lay a legal embargo.

As the weeks went by, this state of affairs became more and more intolerable. The privateersmen, naturally, were restive under the embargo. At first they were inclined to send up earnestly reasoned petitions to the state authorities showing why exceptions should be made in their cases.[11] When these were uniformly denied, most of the owners seemed to accept their defeat and either laid up their vessels for the time being, chartered them to the government, or sent them on trading voyages.[12] Thus privateering came to a standstill, as vessels at sea before the embargo came home and no others went out. And as the influx of prize goods practically ceased, it became apparent that privateering had produced benefits as well as evils. To be sure, as a 'nursery of seamen' for the Continental navy it had been a colossal failure; but it had, as was now becoming clear, provided a not inconsiderable supply of foreign goods no longer reaching America through the channels of ordinary trade. Furthermore, the privateers had indubitably 'annoyed our enemies'—although not nearly so much as Americans could have wished.

Meanwhile the two frigates in Boston harbor, the *Hancock* and *Boston*, were struggling with problems with which all Continental naval officers were familiar. As far back as September 1776 the *Boston* had been ordered to sea (together with the *Raleigh* at Portsmouth) to deal with the *Milford*. But she had not been ready then and she was not now. Lack of a full crew was her chief difficulty. Understandable, then, was the wrath of her fiery Irish skipper, Hector McNeill, when he heard that a number of deserters from his short-handed vessel had signed up to sail aboard the privateer brig *Rising States*. Enlisting the aid of the state authorities, McNeill organized a hot pursuit, which led first to Plymouth, then back to Marblehead, at both of which places the deserters were reported to be hiding out, waiting for a chance to board the privateer undetected. It was all in vain; the privateer herself defied the embargo, ran past the forts at Nantasket before word to stop her arrived, and presumably picked up the deserters from the *Boston* before heading eastward for a cruise in European waters.[13]

11 Massachusetts Archives, CLXXXI, 373; CLXVI, 101, 115.

12 See for example the offer made by Martin Brimmer to the Massachusetts Board of War, 13 January 1777; Massachusetts Archives, CLII, 28-29. The famous Newburyport firm of Jackson, Tracy and Tracy turned to trade; K. W. Porter, *The Jacksons and the Lees* (Cambridge, Mass., 1937), I, 325, 328-331.

13 Massachusetts Archives, CXCVI, 180; CLXVI, 201; CLXXIII, 93. 'A Yankee Privateersman in Prison' (a journal kept aboard the *Rising States* by a member of her crew), *New England Historical and Genealogical Register*, XXX, 174 ff.; XXXII, 285, note, *Massachusetts Historical Society Proceedings*, LV, 77-78. *The Rising States*, after escaping from Boston, crossed the Atlantic and took several prizes; she was then captured in the English Channel by a British seventy-four, and her

About the same time another incident occurred which once more demonstrated, to the satisfaction of those who preferred gold to glory, the unwisdom of enlisting in the Continental navy. A rich prize cargo of clothing destined for British troops was captured by two of the small Continental schooners, left-overs from 'Washington's fleet,' and brought into Boston. Washington's troops, shivering at Morristown, stood in far greater need of these goods than did the original consignees; so two purchasing agents for the Continental army came to buy up at public sale the crews' share of the prize goods. They let it be known that they were buying for the army, so that almost all the other prospective buyers refrained from bidding against them and the goods sold at a very low figure. This was splendid for the Continental cause in general; but it was not appreciated by the men of the Continental vessels making the capture, and the 'noise' they made about it seriously hampered the recruiting of men for the *Hancock* and *Boston*:

> It happened to be very unlucky that this should happen just at a time when the two frigates are getting their hands, for the sailors propagated it that the Continental prizes were given away for half price . . . this got among the Tarrs and created great bickerings and uneasiness among them.[14]

It was plain that the situation of the regular services was not much better than it had been when the embargo on privateers had been laid; yet it seemed that the time had come to raise it nevertheless. John Adams was as familiar with the faults of the privateers as anyone, but under the circumstances he felt that their services were needed. He wrote to his friends in Massachusetts:

> I hope your Embargo is off, before now that the Privateers may have fair Play. Indeed I am sorry it was ever laid. . . . I doubt whether you have got an Hundred Soldiers the more for your Embargo, and perhaps you have missed Opportunities of taking many Prizes and several Hundreds of Seamen.[15]

The Massachusetts authorities were thinking along the same lines. On 20 March 1777 the Council appointed a committee to look into the question of lifting the embargo, observing:

crew thereafter had the doubtful honor of being the first inmates of Forton Prison – especially provided for captured American privateersmen. This privateer seems to be the most likely candidate for the original of the model in the Marine Room of the Peabody Museum in Salem, although the model is rigged as a snow, whereas this vessel is referred to as a brig.

[14] John Bradford, Continental naval agent at Boston, to General Washington, 14 November 1776; same to Leonard Jarvis, 17 January 1777; Letter-book of John Bradford (manuscript in the Library of Congress).

[15] Adams to James Warren, 6 April 1777; *Massachusetts Historical Collections*, LXXII, 312-313.

It is of great importance that there should be ample supply of rum, sugar, molasses, cocoa, coffee, cotton wool and salt for the use of the army, and every impediment to their importation ought immediately to be removed.[16]

Seeing that the situation was becoming favorable to them, the privateer owners (some of whom were themselves members of the General Court) renewed their efforts. John Dean and Mungo Mackey of Boston presented a petition on behalf of the owners of the *American Tartar*, a 350-ton ship mounting 24 guns, which was possibly the largest and finest privateer yet fitted out in America during the war and was a fair match for a small frigate. They pointed out that they had fitted out their vessel at the great cost of £12,000, relying upon the encouragement offered by the government to privateering ventures. The private armed vessels, they declared, 'have done signal Service to these States, and lasting damage to the Enemy.' Their ship would, it was true, carry a certain number of men out of the state; but she might bring back a larger number of British prisoners who could be exchanged for Americans held by the enemy. She would probably capture much-needed clothing and provisions. As a clincher, the owners boasted that the *American Tartar* was 'able to lay along side of any 20-Gun Ship in the British Navy.' They were willing to have their ship make a cruise with the Continental vessels then at Boston; and, if that could be arranged, there was no doubt in their minds that such a force would be 'able to take care of any of the vessels now infesting our coast, which unless they are soon drove off, we have good reason to fear all the little supplies which are expected by the merchants will be cut off and the inhabitants of the state reduced to great distress.'[17]

Here were the elements of a plan which might solve the maritime problem that confronted New England. It was now clear that the private armed vessels must be turned loose again. So be it. But before giving them a free hand, why not require them to render some of that public service which advocates of privateering had been promising for so long? Why not require them to join with the Continental vessels to form a force that would undertake a real naval mission: raising the enemy blockade of the New England coast? Of course there was no question of permanently clearing American waters of hostile men-of-war; but it might be possible to strike an effective blow against the British forces which were conducting the blockade at the moment—mostly frigates and smaller craft—and thereby gain temporary relief.

[16] Massachusetts Archives, CCXIII, 2.

[17] Massachusetts Archives, CLXXXII, 263-264. H. I. Chapelle, *History of American Sailing Ships* (New York, 1935), pp. 133-134, gives data on this vessel.

To this end the Massachusetts authorities now worked. An initial breach in the embargo was made by a resolution of 7 April which permitted privateers to sail from ports that had completed their army quotas, after the masters had been bonded in the sum of £600 not to ship men who were residents of other towns. Massachusetts informed the other New England states of this action, explaining that she was abandoning the embargo because of 'the great necessity of opening the door for the admission either by capture or importation of many articles which we stand in great need of for the use of ourselves and the army.'[18]

Meanwhile steps were being taken to organize a force which, in this spring and early summer of 1777, came to be known throughout New England as 'the Fleet.' On 16 April the General Court appointed a committee to confer on the matter with the parties concerned:

Whereas the present employment of the Vessels of War in this Harbour is of the utmost importance to the Interest of the United States, and by their acting in concert at this Moment, peculiar advantages may arise respecting the Safety of this Coast, and the Security of the important Supplies that are now dayly expected in this and other Ports – therefore Voted that Mr. Cooper, Capt. Batcheller, Col. Partridge & Brig.r Palmer, with such as the Honble Board shall join be a Committee to confer with Commodore Manley, Capt. McNiel & the Commanders of other Continental and Colonial Vessels as may be in this Harbour for the purpose of uniting them in some immediate and important Service, as far as the Orders they have received from Congress or the Government of the States to which they belong will allow, and that the Board of War be desired to be present at their conference.[19]

The reply to this overture which came from the privateer owners three days later might have moved John Paul Jones to regret his strictures on them, had he been inclined to accept their words at face value: a doubtful supposition. This communication is worth quoting almost in its entirety; for, better than any other single document, it conveys the flavor of the enterprise about to be undertaken:

The Subscribers, Owners & Agents for themselves & the rest of the Concerned, having the good of the Country Especially in View: are willing to foregoe their prospect of Gain, and AGREE, that their Vessels shall sail in Compy with the Continental Ships, under the Command of Commodore Manly, and cruize under his Orders, for the term of twenty days from the time of their sailing, upon CONDITION, that the Hon.ble Court will engage to make good the loss, if any of them are lost or taken or

[18] Massachusetts Archives, CCXIII, 150-151; 297. Rhode Island objected that her own privateers were in any case bottled up, and that her army quotas were still only one-third complete; if Massachusetts vessels began to go out, prospective Rhode Island recruits would rush to enlist on them (Rhode Island Archives, Letters, Series I, II, 133).

[19] Massachusetts Archives, CCXIII, 246.

damaged by the Enemy, provided there is not Prize Money enough obtain'd from such engagement to Defray the loss or damage; but if there is, they then Aquit the General Court as they only wish to keep themselves whole.—

The Subscribers beg leave to suggest to the Court that they are assured, it will be impossible for [their?] Vessels to be fitted away, unless the Court will take off the Restrictions with Respect to maning them, and they apprihend it would have a very good tendency, if no other privateers were permitted to man, unless they could be ready to go with the fleet, and if it was Immediately Known that all Vessels of War in the different Seaports of this State, that could be got ready, might have the privilege of getting men upon the best terms they could, they apprihend in this way a very formidable force might be Collected in 8 to 10 days, at least sufficient to Scour the Coast of the destroyers of our Trade the British Cruizers.—As a great number of the Private Vessels are now ready, & the rest may be in 8 or 10 days from this date, and as the present opportunity if delay'd may be lost forever, they pray the Court would Interpose in the fitting the Continental Ships: that the Private Vessel may not be delay'd on their Account.—If this proposal should be agreeable to the Hon^{ble} Court, would it not be prudent that no Vessel be permitted to depart, nor any person to go to Halifax, Newport, or New York until the fleet are sail'ed.

We pray your honors to Act upon this Matter & give your Answer as Speedily as may be, for until you are determined, every thing is at a loose, and unless the Affair is push'd with Secrecy & Spirit, We fear the benefits in view will be in a great measure, if not Intirely lost.

Boston April 19.th 1777

Mungo Mackey ag^{t}. for *American Tartar.*	26 Carriage Guns
Job Prince ag^{t}. for *General Mifflin*	20 Guns
William Shattuck Brig *Hawke*	14 Guns
Sam White Sloop *Satisfaction*	14 Guns
Thom.^{as} Harris Schooner *America*	14 Guns
Nehemiah Somes ag^{t}. for Schooner *Active*	10 Guns
Gustavus Fellowes for Schooner *Speedwell*	8 Guns
Thomas Adams Schooner Willing to Join	8 Guns

At Sundry Outports
Salem 4 Brigs & 1 Sch^{r}. 1 Sloop
Marblehead 1 Brig. 2 Sch^{rs}.
Beverly 1 Brig. 1 Sch^{r}. 1 Sloop
Newbury Port. Several Vessels.

All the Above we apprihend can be got ready and will be willing to go.[20]

The committee reported these proposals favorably to the General Court; and with minor changes the final agreement was drawn up: privateers and Continental vessels to cruise together for twenty-five days under the command of Captain Manley; the crews of the privateers to receive the

[20] Massachusetts Archives, CLXXXII, 353-355.

same wages as those of the frigates; damages to be made good by the state if not covered by prize money; no men belonging to any of the other three New England states or to the Continental service to be enlisted—otherwise free recruiting by the privateers. Any Massachusetts privateer could join the fleet on these terms, 'provided they are rendezvoused at Boston or within the Capes [Cape Ann and Cape Cod] on or before the last day of this month.'[21]

Thus James Warren could on 23 April 1777 reply to the letter of John Adams already quoted: 'the amazing damage we should have done them [the enemy] makes me execrate the policy of stopping our privateers. . . . We have now got a resolve passed to let them loose on condition they will cruise with Manley.'[22]

It was not, however, to be accomplished as easily as that. The delays characteristic of such operations now intervened. The first of May came, but 'the Fleet' was far from ready. On the evening of the day that the General Court ratified the agreement with the privateers, the British frigate *Milford* entered Ipswich Bay and captured several vessels. She was soon joined by the *Diamond*, 32, and *Greyhound*, 28. It was urged that the *Hancock* and *Boston*, with as many of the privateers as were ready, put to sea at once in pursuit of these enemies. But it was found that none of the American vessels was yet in shape to sail.[23] The frigates seemed to have the most trouble, still lacking men and supplies which the best efforts of the Continental agents and naval officers at Boston seemed unable to procure for them. With the enemy 'daily making Captures of vessels belonging to the Subjects of the United States and of their Allies and Friends, even within Sight of our very Towns,' drastic measures had to be invoked. The General Court finally advanced the funds necessary to purchase the supplies needed by the frigates. At the same time the ancient prohibition against labor on the Sabbath was relaxed in order to hasten the fitting out of the privateers—with an injunction (that sounds curious indeed in this war year of 1945!) that the work should be done so as to give 'As little Disturbance to the good People of this State in the Performance of their religious duties of the Day as may be.'[24]

21 Resolution of 21-22 April 1777; Massachusetts Archives, CXXXIX, 94-116, CLXXXII, 356. See also CCXIII, 367-368, 430.

22 *Massachusetts Historical Society Collections*, LXXII, 317.

23 Reference cited in note 1. See also ibid., CCXIII, 348, 353, 371.

24 Massachusetts Archives, CLXVI, 369.

At last, three weeks after the date originally set, 'the Fleet' was ready. The list of vessels stood as follows:

Frigate	*Hancock*	32
	Captain John Manley (Acting Commodore)	
"	*Boston*	24
	Captain Hector McNeill	
Ship	*American Tartar*	
	Captain John Grimes, Boston	
"	*General Mifflin*	20
	Captain William Day, Boston	
"	*Portsmouth*	20
	Captain Robert Parker, Portsmouth, N. H.	
Brig	*Hawke*	14
	Captain Jonathan Oakes, Boston	
"	*Washington*	12
	Captain Elias Smith, Beverly	
Schooner	*Active*	10
	Captain Andrew Gardner, Boston	
"	*America*	14
	Captain Daniel McNeill, Boston	
"	*Buckram*	8
	Captain William Morony, Boston	
"	*Eagle*	8
	Captain Samuel Avery, Boston	
"	*Freedom*	10
	Captain James Colven, Boston	
"	*Speedwell*	8
	Captain Jonathan Greely, Boston	
"	*True American*	10
	Captain John Buffington, Salem	
"	*Warren*	10
	Captain Nicholas Ogelbee, Beverly	
Sloop	*Revenge*	10
	Captain Isaac Freeborn, Boston	
"	*Satisfaction*	14
	Captain John Wheelwright, Boston	
?	*True Blue*	6
	Captain Richard Stiles, Marblehead[25]	

[25] No single complete list of the privateers that signed up with the fleet is at hand; this one was compiled from several partial lists, including those in Massachusetts Archives, CXXXIX, 94-116; CLXVI, 369; CLXXXII, 353-355. These vessels can be identified in G. W. Allen, *Massachusetts Privateers of the Revolution* (The Massachusetts Historical Society, 1937), *passim*. It is uncertain how many of these vessels actually sailed with the fleet. According to the log of the *Boston*, only eight were present the day after sailing from Boston (*Massachusetts Historical Society Proceedings*, LV, 90). Captain McNeill stated in a letter to the Marine Committee of Congress written after the cruise that 'eight or ten' privateers had accompanied the Continental frigates (ibid., p. 100). It would seem that these statements were likely to be better informed than that from a British source which put the number of vessels in the entire fleet at eighteen (Sandwich to North, cited in note 39).

About half of these privateers, including the *Washington* and *Speedwell,* had been at sea in 1776. In that year too the *True American,* under the command of Daniel Hawthorne—grandfather of the novelist—had made a famous cruise commemorated in a ballad which has come down to us.[26] The rest, including the larger vessels, were now to put to sea for the first time, although some, like the *American Tartar* and the *Hawke* had been ready for six months or more, held in port by the embargo. The owners of each privateer signed a separate contract with the state and bound themselves to fulfill the obligations thereby incurred.[27]

On 21 May 1777 the main body of 'the Fleet' put to sea from Boston and headed eastward. Elated to be finally free from the morass of troubles which had harried him ashore, Captain McNeill on that very day sat down in his cabin aboard the *Boston* and expressed in a letter to the Maritime Committee sentiments probably shared by many of his companions: 'The long wished for hour is at last come in which I bid farewell to the sleepy Agents, disheartened Tradesmen and distressed Seamen who frequent the Streets of Boston.'[27a] Enthusiasm for the venture must at this moment have been at its height. As for the completeness of preparation and organization for action—that was a more doubtful matter. Supposedly each of the commanders knew what he was required to do. Captain Day of the *General Mifflin,* at least, had received instructions from the Commodore:

> Keep as close to the *Hancock* or *Boston* as possably you can by Night and by Day and not to part with us upon consideration What Ever. If we should Fall in with two British Friggates you are to engage One of Said Frigates with the Ship *Hancock.*[28]

Great care was taken to guard the secret of this expedition. Very likely the authorities adopted the suggestion of the privateer owners that no vessels or persons be allowed to depart for Halifax, Newport, or New York

[26] See R. W. Neeser, *American Naval Songs and Ballads* (New Haven, 1938), pp. 9-12. A contemporary account of the cruise is in the *Boston Gazette,* 28 October 1776. There was confusion as to the name of this vessel, which was sometimes called *True American,* sometimes *Free American* (e.g. Allen, *Massachusetts Privateers,* p. 306. *Boston Gazette,* 12 August, 4 November, and 2 December 1776; 3 February 1777). When she was recommissioned under the command of John Buffington in the spring of 1777, whoever drew up the petition first wrote 'True American,' then crossed out 'True' and substituted 'Free' (Allen, *Massachusetts Privateers,* p. 138). In Neeser's collection the ballad is entitled 'Cruise of the Fair American'—which sounds like a corruption of *Free American.*

[27] Massachusetts Archives, CXXXIX, 94-116.

[27a] McNeill to the Marine Committee, 21 May 1777; *Massachusetts Historical Society Proceedings,* LV, 82. (There is published here much material relating to Hector McNeill collected by Gardner W. Allen, including a letter-book of McNeill's and a log-book kept aboard the *Boston* during the cruise of the fleet. I should have overlooked this material had not Lieutenant Brewington called my attention to it.)

[28] Early Files of the Superior Court of Suffolk County (manuscripts in the Suffolk County Court House, Boston), DCXII, 40.

(all under British control) during the time the fleet was fitting out. For once Admiral Howe's Tory informers failed him, and the British did not learn what was afoot until after the fleet had sailed from Boston. Commodore Sir Peter Parker, naval commander at Newport, finally received the startling intelligence at the very end of May. He at once ordered out three frigates and a 24-gun sloop-of-war in pursuit, at the same time notifying Admiral Howe of this dangerous development.[29] The British Admiralty in London had word of the departure of the American fleet from Boston in Howe's dispatch of 8 June. This was followed immediately by a report from Admiral Montague at St. John's, Newfoundland, announcing that the Americans had already captured the British frigate *Fox*, and that the fishing banks were invaded by American 'privateers' superior in size and number to his own squadron.[30]

The naval authorities in England were seriously disturbed by this news. Sir Hugh Palliser, First Sea Lord of the Admiralty, feared that such an American force, sailing in small groups, each strong enough to overcome one of the British 'cruising frigates,' would be capable of disrupting the blockade of the American coast. Then the Yankees would wreak havoc on the Newfoundland fisheries and fall upon the West India convoys. King George III was alarmed, but inclined to be philosophical about the matter. He hoped that the 'gang of Pyrates' would soon be driven off, observing: 'I am engaged in an unpleasant though necessary business; which must naturally occasion many disagreeable events, but I hope I have strength enough to meet them.' To the English merchants and business interests it seemed to be less a question of the King's powers of endurance than of the effect on British commerce. On the receipt of news of the depredations of the American cruisers on the Newfoundland fisheries, 'London and the trading ports, even those attached to the government, [began] to grow very uneasy and talk loud.'[31]

Alarm in government circles was heightened by the conviction that this Yankee expedition was part of a scheme instigated by the French to distract and disperse British naval forces, rendering them vulnerable to an attack by which France would signalize her open intervention in the war.

[29] Parker to Howe, 31 May 1777; Public Record Office, Admiralty I, CDLXXXVII, 623 (Library of Congress Transcript).

[30] Montague to Germain, 11 June 1777; Historical Manuscripts Commission, *Stopford-Sackville Manuscripts*, II, 69. Sandwich to Lord Howe, 3 August 1777; G. R. Barnes and J. H. Owens, editors, *The Private Papers of John, Earl of Sandwich, First Lord of the Admiralty, 1771-1782* (London, 1932-1938), I, 293-295.

[31] Palliser to Sandwich, 22 July 1777; *Sandwich Papers*, I, 233-234. George III to Lord North, 22 July 1777; Sir John Fortescue, editor, *Correspondence of King George III* (London, 1927-1928), III, 460-461. G. A. Ward, editor, *Journal and Letters of Samuel Curwen . . . 1775-1783* (New York, 1842), 145-146.

Such was the fear voiced by William Eden, Undersecretary of State.[32] And could John Adams and the other leaders who had fought so hard for the use of naval power by the Americans have seen the letter in which the First Sea Lord expressed a similar fear, they would have been gratified indeed. On learning of the 'escape' of the fleet from Boston, Admiral Howe had requested that reinforcements be sent out to him from England immediately. To comply with this demand, felt Palliser, would be playing directly into the hands of the French:

> The orders which they pretend to issue are merely to deceive in order to begin the war with the greatest possible advantage; and which may succeed if our only security at home (which consists in our great ships) are to be dispersed to the other side of the Atlantic after flying Squadrons of privateers, whilst so large a fleet of frigates and line of battle ships remain moored in the ports of America or employed only to secure and support an army who it seems cannot support itself. Should not Lord Howe be directed to dispatch ships after such fleets of American armed vessels? For if we are to disperse our home guard after every squadron of privateers in distant ports, whilst the fleets of France and Spain armed, we certainly shall not be safe at home.[33]

Thus did jerry-built Yankee sea power threaten to become a factor in grand naval strategy, so tipping the balance of power that Great Britain would fall prey to her European foes—or so certain British officials in a jittery moment professed to believe.

On 7 June 1777, a little more than two weeks after the departure of the fleet from Boston, the *Hancock* and *Boston*, having eluded a ship of the line the day before, met the British frigate *Fox*, 28, near the Newfoundland banks. Coöperating with each other in a brisk action, they captured her. The encounter was concisely described in the homely language of the log kept aboard the *Boston*:

> Betwixt the Hour of 12 and one P.M. Capt. Manly Began to Engage Broide Side and Broide Side, our Ship coming up as fast as Posable at Last we Came up and Gave them a Noble Broid Side witch made them to Strike a meadeatly a Bout half after one. Captain Manly had some men killed and so had the frigate Cald the *fox*. Besides Both frigates ware Damaged in their Sails and Rigen. The *fox* had some of hir yards shot away. We had but little Damage done to us, no Life Lost thanks be to God.[33a]

Here was glory indeed: on few other occasions during the war was an American armed vessel victorious over a vessel of the Royal Navy as strong as the *Fox*. To be sure, the American frigates together were greatly su-

[32] Eden to Sandwich, 20 July 1777; *Sandwich Papers*, I, 231-233.
[33] Palliser to Sandwich, loc. cit.
[33a] *Massachusetts Historical Proceedings*, LV, 92.

perior to their adversary; but it was still not forgotten that a year earlier a single 20-gun British sloop-of-war, H.M.S. *Glasgow*, had beaten off Hopkins's entire squadron and escaped.[34]

Where were the privateers when this great feat was being accomplished? They had no part in it. Five days after the departure from Boston the *General Mifflin*, one of the three largest private armed vessels with the fleet, reported a case of smallpox on board and asked permission to put into a nearby port and land the sick man. Captain Day invited Commodore Manley to come aboard and see for himself (which perhaps suggests a lack of complete confidence as between the two officers); Manley discreetly declined the offer, fearing to risk bringing the infection aboard his own vessel. The Commodore told Day he must do as he thought best; whether anything was said about the privateer's rejoining the fleet later, does not appear. At any rate, the *General Mifflin* now went into Boothbay, Maine, set her invalid ashore, and sailed immediately upon a cruise of her own.[35] She was thus in no position to obey her orders to support the Continental frigates when they met the enemy.

On 27 May, the day after the disappearance of the *General Mifflin*, the entire fleet was scattered by a violent storm marked by 'Strong Gails and Drizlen Raine' (surely a typical New England northeaster), only the two Continental frigates remaining together. Thus within a few days after leaving port the vessels making up the fleet had dispersed without striking a blow of any sort together. Two or three of the privateers regained contact briefly with the frigates, but only the *Active* stayed with the Commodore for the specified period of twenty-five days.[36] The others went off on individual cruises that met with varied success—which in any case did little to forward the purposes for which the fleet had been organized. (It is unnecessary to follow the later careers of these vessels. But the *American Tartar* might be said to have justified in a way the boast of her owners when, in July 1777, she fought a bitter engagement west of the British Isles with the privateer ship *Pole*, 26, out of Liverpool. The fight was apparently a draw, with both vessels suffering heavy casualties.)[37]

The only success which might in some degree be connected with this disappointing project was short-lived. Just a month after they had captured the *Fox*, the *Hancock* and *Boston* with their prize in company encountered a British force consisting of two frigates and a 10-gun brig. Mc-

[34] Allen, *Naval History*, I, 101-108, 204-206.

[35] Early Files of the Superior Court of Suffolk County, DCXII, 34-41.

[36] Ibid., p. 46. Massachusetts Archives, Revolutionary Rolls, XLIV, 438.

[37] Allen, *Naval History*. I, 232-233.

Neill with the *Boston* seems to have run away, while the other two were captured by the enemy. The *Hancock*, reputed to be the finest vessel and fastest sailer among the Continental frigates, was taken into the British navy and did good service for the enemy throughout the war under the name of *Iris*.[38]

The British had no real cause for such alarm as seems for a moment to have shaken them. The American 'fleet' was one in name only; in reality it was merely an assemblage of vessels that left port together. On paper its strength was impressive: the privateers alone carried 200 guns and some 1200 men. But the guns were small, the men untrained. There was enough strength in the force to strike a heavy blow, if the members of it had been willing and able to act together in joint maneuvers. But it was precisely here that the 'fleet' proved fatally defective: it had no value as a tactical unit, being incapable of carrying out a concerted movement. Manley's primitive staff work must probably bear a good deal of the blame for this. If the crude instructions given to the commander of the *General Mifflin* provide a good sample of the Commodore's plans and arrangements, he had evidently not done much to prepare his force to carry out tactical enterprises. McNeill stated that Manley had arranged no signals whatever for the fleet.[38a] And there is no evidence that the Commodore had provided for a rendezvous where the members of the fleet might reassemble if the need arose—a routine precaution against a kind of mishap constantly experienced in fleet movements.

The chief result of the affair for the Americans should have been to bring home to them the difficulties of improvising sea power. It should also have disgusted them with the notion of relying upon a force composed largely of privateers to do a real naval job; for, despite the apparently genuine mishaps which could be cited to explain the defection of the privateers, there remained doubt in the minds of some as to just how much good will and determination the privateers had put into the performance of their share in the operation. Yet it remained for the Penobscot expedition a couple of years later to drive home the lesson on that point.

Nevertheless, could the Americans have read the correspondence of British officials about 'the Fleet,' they might in spite of their chagrin have been encouraged to make further efforts of this kind. At the end of the year Admiral Howe was still explaining and apologizing for his failure to prevent the departure of the fleet from Boston, while the First Lord of

[38] Allen, *Naval History*, I, 206-216. Chapelle, *History of American Sailing Ships*, 64-66.

[38a] McNeill to Thomas Thompson (commander of the Continental frigate *Raleigh*), 21 July 1777; *Massachusetts Historical Society Proceedings*, LV, 104.

the Admiralty was impressing upon the Prime Minister the importance to the safety of Great Britain of having immediate intelligence of such enemy enterprises sent to England, 'for want of which eighteen rebel privateers of whose existence we had no intelligence sailed at once from Boston and Salem and came upon us unprepared in different parts.'[39]

[39] Howe to the Admiralty, 10 December 1777; Public Record Office, Admiralty I, CDLXXXVIII, 143-148. Sandwich to Lord North, 8 December 1777; *Sandwich Papers*, I, 332.

Voyage of the Brig Nabob *from Boston to Batavia, Java, in 1833*

From a letter by Captain George W. Putnam, of Salem, to his sisters

EDITED BY RALPH NEWELL THOMPSON

ON board the Brig *Nabob* at sea in North latitude 36° and West longitude 47° 20 March 1833.
My dear Sisters,

We are just one week from Boston and we have had a tolerable good chance to have progressed thus far on my passage. I am now 1400 miles from you.

I parted with you, Matilda, Sunday eve and went to Boston. Abby, I left you Tuesday night at a late hour. We had just returned from a very pleasant and agreeable party. I told you I would call up in the morning—but I did not intend to. The morning came, the wind was fair and at 8 a.m. I was on board and so was my old friend Tilden[1] and the Pilot. I gave my orders to the Pilot in coming up over the side to get under way and before I had lifted my hat to my first officer in coming over the gang-way 'all hands ahoy' and 'man the windlass' was shouted merrily all along the deck of the *Nabob* by her ready and willing crew who had been wind bound three days and were anxious to be under sail and out of sight of land which they sigh'd to tread in vain.

Before 9 o'clock on the morning of March 13th 1833 the good Brig *Nabob* had spread her wings and was flying through the sea at a rapid rate and the tall spire of the State House in Boston had vanish'd almost unnoticed. I could not yet realise that I was taking the last look at that noble structure. At 2 o'clock Cape Cod was astern and at 3 it once more sank in the western wave to rise no more for a long, long time. Look all around the horizon, you see a continued watery line, no hill, tower or tree breaks the unruffled circle. Nothing to 'green hand' could be more demonstrative of his being at sea than this, but to me it was no new thing and I could not yet realise that I was on the ocean.

[1] Bryant P. Tilden, supercargo, whose journals of this and other voyages to the Far East are owned by the Peabody Museum of Salem. The publication of these journals will be undertaken by the Museum after the war.

We had a fine breeze all night and we advanced as rapidly as a steam boat but it was cold and our Brig rolled heavily. I retired at midnight into my little cabin but found it so cold that I could not sleep. I could now fully realise that I was at sea and thought of Elisa's settee and a good coal fire etc. Thursday morning, March 14, I saw what I had not seen for 6 months, the Sun rising from his watery bed. It was a cold morning and our decks were literally cover'd with ice. A good breakfast of beef steaks, hot coffee and eggs at 8 o'clock made me insensible for the moment to the extreme cold. At noon, the same day, I was 224 miles from you and towards night the weather was milder. The sun went beautifully down tinging the whole western horizon with beautiful gold.

Friday, March 15th, was a cold but pleasant day and not much wind but I got through with it tolerably well, and ate a good deal of dinner consisting of mutton soup, roast beef, and rice pudding; took tea at 6 p.m. and went to bed at midnight.

Sunday, March 17th, was a dull cold disagreeable and unfortunate day, and having carried away our main top sail in a squall we could not keep the day holy for we had to go to work to get up another yard which took nearly all day. This sin sits very easy on my conscience and I hope I shall never do anything worse. Today at dinner the *Nabob* roll'd so heavily that I had to lash myself and chair to the table to sit comfortably. Had one tumbler and plate and one dish cover broken by a sudden lurch—a mere trifle at sea.

Monday and Tuesday the weather grows warmer and we are getting used to the vessel. She sails fair, my officers and sailors, cook, steward, carpenter and sailmaker please me thus far and I am as happy as you could expect me to be.

Today, March 20th, we passed a French ship bound to Europe and saw another vessel astern. It is always pleasant to see a sail at sea, it breaks up the sameness of sky and ocean.

March 21st 1833

Thus far we progress finely, no head winds, gales or calm to impede us on our way. Today the sun crosses the line and comes into the North latitude and we have a new moon too. This is always consider'd a very precarious period in the vicinity of land situated near or within the tropics, and sometimes in old Massachusetts Bay you have known sad ship wrecks etc. about this period. But the day with us has passed off pretty well, not however without threatening us a little for the clouds looked wild and

my Barometer fell suddenly from 29.72″ to 29.52″. We however had nothing more than a stiff whole top sail breeze and some squalls of rain.

March 22d

Today has passed off well. We have had a fine fresh breeze from the N. West and have sailed over 188 miles during the 24 hours and with the exception of a few squalls of rain the weather has been good. We have got out of cold weather at last, our thermometer stood at 63° today in the shade and our sailors are in their shirt sleeves and bare footed. I keep my winter clothes on yet for the nights are rather cool. Today Mr. Tilden and myself made out to shave which is the first time since we left Boston for the weather has been so cold, and without a fire in the cabin we found it almost impossible to do it with any degree of comfort. I feel all the better for it now.

March 23d

We have had beautiful spring like weather all this day, the thermometer ranging from 63° to 67°. We have sailed 78 miles and have had the wind fair. We are now in what is called by the sailors the 'Horse Latitudes' which range from 38° to 28° North latitude. As this span lies between the variable and trade winds it is natural to expect calms and light winds—sometimes for weeks together, as was verified about the year 1789. A Rhode Island brig with a high quarter deck with a load of horses made sail from the good town of Newport bound to the West Indies. She was becalmed between the Lat. of 34° and 28° North 40 days and all the cargo of horses perished—hence the name of 'Horse Latitudes.'

Tuesday, March 26th.

Admire with me this day for it is too fine to enjoy alone. Windows, doors and port holes are all thrown open and fine spring like air is drawing through every opening. I am seated at the cabin table in my shirt sleeves. Not a cloud is to be seen in the whole broad expanse of heaven and the sea a gentle undulating motion, not more than you experience on board of the steamboats that ply between New York and Providence. Thermometer stands at 68° in the shade and the pigs and fowls are panting in the sun oppressed with its heat. My men are sending down a short fore top gallant mast and sending up a longer one.

Wednesday

This has been a very moderate day but the weather, air, etc. as fine as you can imagine the Saturnal air of Italy. My cook spoilt our dinner today

which consisted of pea soup. He soaked them in salt water and when they were set before us they were but half boil'd. For this and other offences he has had a good thrashing by my first officer, Mr. Stotts. 'A sail, a sail, the cry is a sail and every heart beats with delight.' We have just made one on our weather bow bearing down for us. She appears to be a Brig. If she were a schooner we should be busy in preparing for a fight for we are now in a piratical latitude and I am determined never to be taken by one of those blood thirsty villians.

Monday April 1st.

April comes in rather auspiciously—a fine N. E. trade and finer weather you never saw or never will. We have been going like a steam boat all day. Mr. Tilden is now sitting opposite me—writing—copying 'Sarah's order for the whole family' in which I perceive a large order for 'puff combs.'

I have a boy on board whose name is John Bradford who has very respectable parents in Boston. I had an interview with them before I sail'd. Poor boy has not seen a 'well' day since he left Boston and it is now Wednesday April 3d 21 days out. Miles from home, he sits pale, emaciated and heart broken. The contrast between his mother's fireside and a ship's forecastle is by this time felt sensibly enough and he now is fully aware of what I told him before we left Boston that there was but a very little real happiness to be found in a ship's forecastle for a young man bred in good society. I try to make him as comfortable as I can. As for myself at this present time I am in excellent health.

Thursday April 4th.

I am here in the Latt. of 10° 12″ North and 27° West Longitude. This is a warm delightful day with us. A fine breeze is fanning us through our cabin windows, the 'bonitos,' dolphin and flying fish are sporting in the waves and our Brig is gently cutting the clear blue water leaving a gentle rippling along her sides.

April 5th

I have a little dog. I say little because he is as yet but a pup. I thought of calling him Tommy but have finally called him 'Bonny.' Although so young—not more than three months old—it is astonishing how much he knows. I allow no one to feed him but myself and he is so fond of me that he follows me everywhere, and cries like a child for me when I am absent. It is amusing to see and hear him bark at the sailors when they come aft and then run to me for protection. In the night he watches well and no one can come into the cabin but what he will have his bark at them. At meal

time he lies at my side and has his plate and I give him a regular allowance each meal but never allow him to eat after I have put his victuals in his plate until I count ten by which I shall break him of being too eager to grasp everything that is handed him.

April 6th

Fine weather, thermometer at 77° in the shade and a gentle breeze blowing into our sails lulling them to sleep, their swelling bosoms heaving at every motion of the vessel backward and forward as if enjoying the great fan. Now and then I see a solitary man of war bird sailing through the air or pouncing down upon an unsuspecting flying fish.

April 7th

Sunday has come again and I took my Bible as usual the first thing after I finished my toilet. I opened today in Psalms. Six of them were before me, I chose the 19th for my text.

Thursday April 11th

This day we were nearly directly under the sun at noonday so that it cast no shadow east, west, north or south. When directly under the sun the day is 12 hours and the night the same, the sun rises at 6 and sets at 6.

What is more horrible at sea than a gale of wind? A calm, much more so to me. The heavy dormant clouds with swelling heads hanging like an island on the horizon—the clear blue dome of Heaven above—the Sun's expansive rays showering down like fiery darts—the lazy filthy sea vomiting for want of wind to circulate its surface—the ship rolling in the hollow trough of an unbroken swell or pitching its prow or stern alternately into the sullen wave. Then creaks the rudder on its heavy hinge and wheel neglected takes its own command. Flagging sails beating against the masts as if they were mad and roared for wind to fan and swell their lazy bosoms. Then sighs the Captain and whistles loud and long to court a breeze—and sometimes in a passion stamps upon the deck and shouts out: 'Blow, devil, blow and take the cook.' Then calls his mate and points to a moving cloud or cats paw on the water. 'Here comes a breeze,' he cries and every eye is turned and sweeps the horizon. 'Here comes a breeze' along the decks resound. 'Board the fore tack and brace the main yard 'round. To the wheel there a hand' She feels the breeze and now begins to go.

Friday April 12th

We are now in the S. E. trades. We have the trades it is true, but they are so very light that we scarcely move through the water and the strong westerly currents are setting me to the westward daily and I am under

some apprehension of falling to the leeward which will greatly prolong my passage.

Saturday April 13, 1833.

We are this day on the Equinoxtial line and am distant from you 3500 miles, 31 days out. Three persons on board on the sick list—Mr. Tilden cold and rheumatism, Carpenter, sore foot caused by a nail run into it nearly two inches, John, poor boy, still seasick, or what is worse homesick.

Here we are in the Dominions of Neptune who has not deigned to visit us. Perhaps he thinks it is too much trouble to come on board to shave only two, or perhaps I am not one of his favorite captains who give him a hearty welcome on board. The custom of shaving the green hands when they cross the line is daily losing its advocates and even among the sailors themselves. I do not allow anything of the kind where I command—it is often the foundation of much mischief on board and leads to intimacies between the Captain and crew that too often destroys the authority of the former and obedience of the latter.

Monday April 15th.

I am now writing to you in another hemisphere from the one that you are in. I am now 3 degrees south of the Equinoxtial line and have a fine S. E. trade wind and with it we shall quickly pass to southward if we are fortunate enough to fetch clear of Cape St. Augustine without beating. There is some doubt of it at present for we are in the Long. 31° west and this cape lies in 34.50. Now we must have the S. E. trades pretty favourable to clear the Cape. What a climate we are in. And a stranger (or even I who have sailed over this paradise of the ocean) would never weary in gazing on the beauties of a Southern sky which as we advance south is gradually exhibiting new and beautiful constellations of stars to our view.

We feel an indescribable sensation in passing from one hemisphere to another, in seeing those stars that have delighted us from our infancy and contemplated with our friends at home 'many a time and oft' gradually sinking and finally disappear.

Nothing awakens in the mind of the green hand or fresh traveller o'er this track of ocean a livelier sensation of his immense distance from home than the new face of an unknown but beautiful firmament. He knows he is far away from home when he see the polar star pointers and beholds the sparkling Southern Cross, the Magellan Clouds rivalling the Milky Way in splendour; the beautiful southern constellation of the Ship and the large fields of space as black as ink rising like new images on his sight. The very air he breathes feels different and the sky, the water, the clouds, the stars,

the flying and skipping fish, and tropical birds, to him, assume an esotic cast. We old sailors hail these objects, so often seen before, as the well known physiogomy of an 'auld' friend.

Tuesday April 16th.

I am now in the South Latitude 6° or about 360 miles south of the Equinoxtial line and have a fine S. E. trade wind. We are travelling off at a rapid rate, say 8 miles an hour, with all our light sails spread to the breeze. If there is any spot on the vast oceans of this globe where the mariner can feel himself perfectly safe from storms, gales hurricanes, etc., it is here in the limits of the S. E. trades. It is indeed delightful sailing for from 12 to 15 days the wind keeps fix'd steadily at one quarter, not a brace or bowline is started, not a sail added or diminished. The sea is smooth, the air like the cool breezes of a summer afternoon in New England.

Thursday April 18th.

The *Nabob,* the vessel which I command, I have said but very little about, but it is not that I am indifferent to her good qualities that I have been silent so long. I wanted to try her faithfully in all situations before I gave you her portrait and I think by this time I know her. To find out the good and bad qualities of mankind requires a greater length of time. The *Nabob* is decidedly the finest vessel that I have ever commanded or ever sail'd in. She moves through the water as easily as a dolphin and as rapidly as a steamboat. She cuts the waves not with her taffrail but with her cutwater and leaves a gentle rolling white capt wave on either bow abreast her forechains. The curling of her wake is as still and as silent and as smooth as the wake of a wild duck in a pond. She bows gracefully to the breeze and breasts the gale with firmness. She turns about with as much ease as a young girl walking and, in fact toto, she is a Nabob. She is a Nabob.

Friday 19th, The *Nabob* cabin.

It is a little parlour, its only inmates at sea Mr. Tilden and myself. It is panell'd around its sides and ends with mahogony and beautiful bird's eye maple finely polished. You can enter it on either side, starboard or larboard, and its doors are half of glass and half of mahogony panel work. Opposite to these two doors are two windows from which we receive our light from the stern, and in hot weather—with the doors and windows open—a fine refreshing draft of air is always rushing through so we feel quite comfortable here. When upon the deck, the heat would be almost insufferable. In the forepart of the cabin stands a mahogony settee cover'd

with hair from horses tails—and on this I take my siesta after dinner and lie and read for hours. In very hot nights I sleep on it. Directly opposite, and in the after part of the cabin, is a mahogony transom with seats like window seats of a parlour and above and over the windows hang rustling in the wind red damask curtains tosel'd, and trimmed and festoon'd with yellow borders. In the middle of the cabin abaft is our gilt frame looking glass. The mahogony table stands in the middle of the floor.

Saturday 20th.

On either side is a large armchair; these are now occupied by Mr. Tilden and myself seated at the table writing. Over our heads hangs, swinging with the motion of our vessel, a globe lamp which is kept lighted only at night. On the starboard side from the projection of the rudder case, swings like a pendulum of a clock my barometer. On either side of the cabin is situated a door which leads to our bedrooms. And under our settee lies my dog—Bonny—who seldom goes on deck without his master.

This day we spake the French brig *Alexander* 40 days from Ostend. I asked the Captain what the news was to which he replied, 'Every ting is juste the same, de French and English blockade the Dutch.' I asked him to report me at Rio de Janeiro whither he was bound. He said he would.

Friday 26th of April 1833.

It is now 44 days since I left the shores of my native country and am now 5000 miles from it. I can safely say I have never been happier on ship board. Time passes pleasantly and thanks to the Author of my existence that I have been blessed with good health.

May 1st 1833.

We are today in South Latitude 31 degrees and West Long. 23 degrees and are, for the first time since leaving Boston, under reef Topsails. So you may guess how fine we have had the weather etc. Today it blows but a moderate gale and it is a head wind.

I am often asked by people on shore this question: 'How do you pass time at sea?' I could write you two or three pages upon the pleasures and occupations of a seafaring life but this small blank must suffice for this stormy day. I seldom let the sun rise before me, unless I have been up in the night by bad weather etc. Then from the time I rise until breakfast hour I walk the deck ruminating on a thousand things that never were nor never will be. I do this to inhale the pure morning air and for exercise which cannot be taken when the sun is up in warm weather. I breakfast

at 8 am. My breakfast is very simple—a cup of coffee and a plate of hasty pudding and molasses. After breakfast I sit and read one hour, then walk the deck again until 11 am; then commence writing to you and write 'til noon; then take the sun's altitude, work the latitude, write in my Journal, mark off my track on the chart and at 1 p.m. dine. After dinner, I read until 4 p.m.; then write on hour; then walk the deck 'til supper time. After tea, I play a little on my violin; then walk the deck 'til supper time. After tea, I checkers with Mr. Tilden. Go to bed at 10p.m. and find the day full short enough and no time to spare. My dog calls me exactly at break of day and if I don't get up he will whine away like a good fellow.

June 13th 1833.[2]

This day we are in the Latt. of 23° South and 102° East by chro. and lunar observations and not withstanding we are 4° past the southern boundary of the S. E. trades, yet we have not got them. Shall I complain? O no, we have a 7 knot breeze from the S. W. which is a fair wind for us and we are within 1100 miles of Java Head and have not yet met with any accident—have passed the boisterous lattitudes of the southern ocean in the Winter season, and I am in excellent health. Not so with my friend; he is laid up with the gout in the knee. I try to console him by saying he ought to be thankful that he has it not in his hands and feet but it only irritates. Alas, he is no philosopher—he bears sickness or pain like a child.

June 14th.

We have passed the rigours of a high Southern Latt. in the winter season in safety. The Cape Pigeons and Albatrosses have deserted us and are far astern in our wake, or perhaps in the wake of some other vessel that they have fallen in with. The sailors are no longer muffled up in their 'Linsey woolsey' jackets. Our cabin windows are releas'd from their confinement, and are open'd to make room for air—our pigs are frolicing about the decks. The flying fish starts up at our approach and skims the blue wave with his silken wings. The Tropic birds are hovering about our skysail trucks—and we are now sailing under a sunny sky in the S. E. trades with all our sails set to the breeze. What a sudden transition, but one week since when we were shivering in the winters blast. We are now panting in the summer sun.[3]

[2] There are no entries between 1 May and 13 June 1833. During this time the *Nabob* sailed around the Cape of Good Hope, past the island of Madagascar, and on 13 June stood within 1100 miles of Java Head.

[3] Captain Putnam made no further entries. From Mr. Tilden's Journal it is learned that the *Nabob* reached Batavia, Java on 21 June 1833, ninety-five days from Boston.

The Dismal Swamp Canal

BY ALEXANDER CROSBY BROWN

I.

THE Dismal Swamp ship canal connecting Chesapeake Bay and Albemarle Sound is undoubtedly the oldest surviving artificial waterway in the United States.[1] Although today it is merely one link in the chain of canals which skirt the Atlantic seaboard and comprise the Intracoastal Waterway system, it was the first to be forged and its importance remains undiminished by the passage of time. Dismal Swamp, the virtually impenetrable morass through which it runs, lies across parts of southeastern Virginia and northeastern North Carolina. Originally this vast sponge was said to cover an area estimated at two thousand, two hundred square miles, but reclamation by drainage has through the years reduced its area by almost two thirds. Lake Drummond, an oval pond about five miles across by seven long, is situated in the approximate center of the swamp, twenty-one and one-half feet above mean low water in the Elizabeth River, and provides an adequate reservoir of amber-colored water to maintain the canal the year round.

In colonial days Dismal Swamp effectively blocked off the direct overland routes from the northern parts of the Carolinas to their logical port of Norfolk. As is well known, the entire Albemarle and Pamlico Sound regions were already denied deep water ports by the long barrier beach, a narrow ribbon of land pierced only by shifting and treacherous bar-bound inlets, which skirts the sounds and culminates to the eastward in Cape Hatteras.

Geologists state that Dismal Swamp was formed as a result of the gradual emersion of land originally comprising the flat ocean bottom. A ridge called the Nansemond Escarpment now bounds the swamp on the west, marking the original coast line when, centuries ago, the surface of the continent was twenty-eight feet below its present level. Swamp conditions resulted when normal drainage became impeded by the flatness of the ele-

[1] See Appendix.

vated land and, paradoxically, Dismal Swamp now exists at a greater altitude than the dry land which surrounds it on three sides, and five streams run out of it.[2] Vegetation is profuse and from earliest times the swamp has been famous for its timber: gum, white pine, cypress, and juniper. The soil is a spongy half-formed peat, and stumps, roots, logs, and snags are twisted and lapped to a depth of twenty feet.

As is to be expected, terrain of this character provides excellent cover for wild animals and Dismal Swamp has long been a choice hunting ground. It is said that the lake was discovered by William Drummond, first governor of North Carolina (1663-1667), when on a hunting trip. Drummond did not profit by his discovery and was hanged in 1677 for taking part in Bacon's Rebellion. Some historians have it that 'a Scotchman named Drummond' discovered the lake in 1775—an inadequate deduction since it was charted by Washington's surveyor in 1763, who made no claims to having been the first to find it.

The earliest literate description of this region comes from the writings of Colonel William Byrd II (1674-1744), of Westover, Virginia, who was engaged in 1728 with a band of surveyors in the arduous task of running a dividing line south of Lake Drummond between the disputing colonies of Virginia and North Carolina.[3] Byrd's writings contain no reference to Lake Drummond and he was probably unaware of its existence. However, his impressions of the swamp leave no doubt but that he considered it an awesome and terrible place and it is said that he is responsible for its name.

'The Dismal is a very large swamp or bogg'[4] wrote Byrd, and, although he praised the fine stands of timber, he hastened to state that the place was a 'horrible desart,' and that 'the foul damps ascend without ceasing, corrupt the Air, and render it unfit for Respiration. . . . Nor indeed do any birds fly over it . . . for fear of the noisome exhalations that rise from this vast body of dirt and nastiness.'[5]

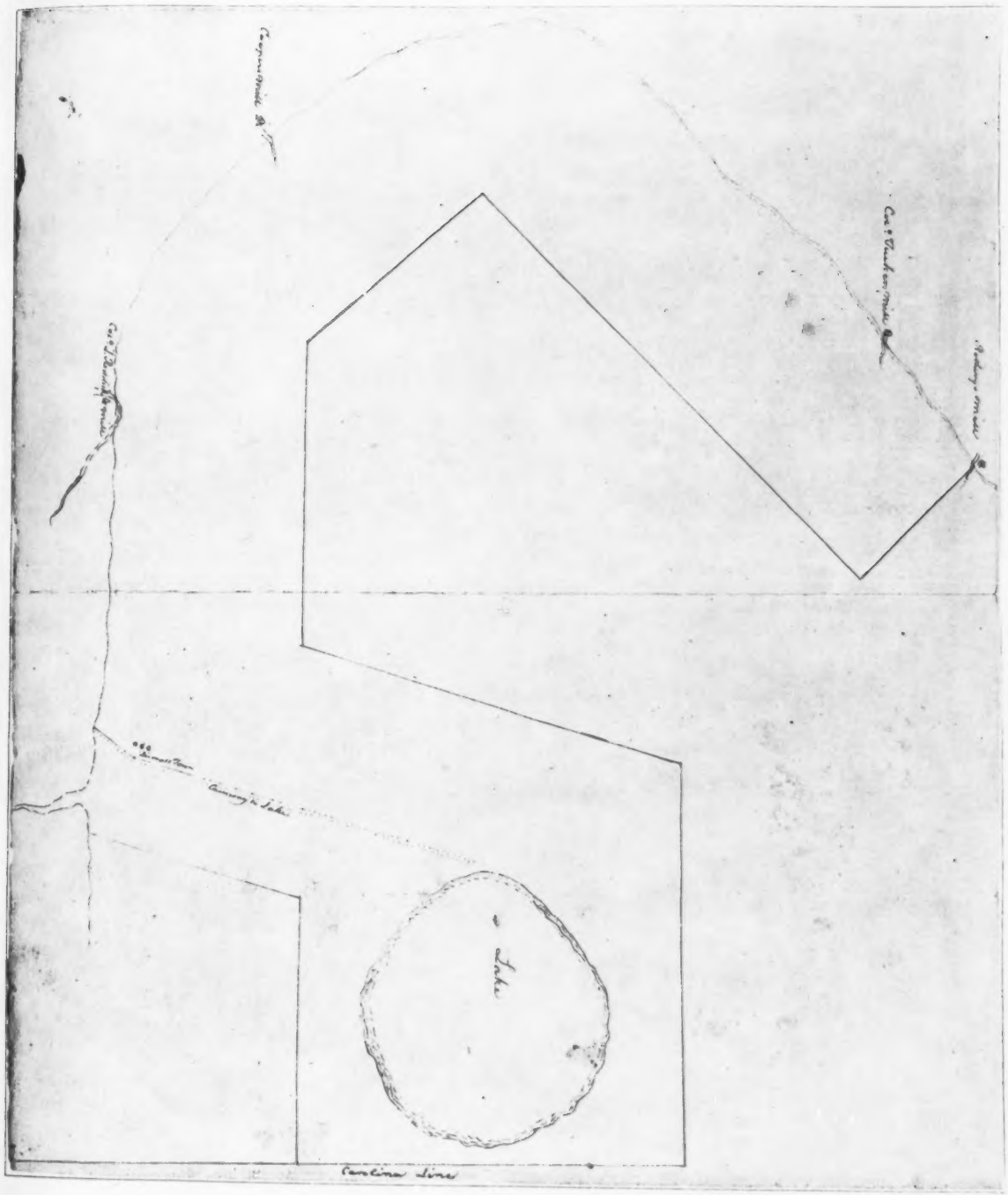
The surveyors could only travel a short distance each day and took ten days to push the line fifteen miles across the swamp. They were eaten alive

[2] South Branch of Elizabeth River; South Branch of Nansemond River; North Run; Northeast River; and Pergamond River. See: N. B. Webster, 'Physical and Geological Characteristics of the Great Dismal Swamp,' *American Naturalist*, IX (1875), 260-262; T. H. Kearney, 'Report on the Botanical Survey of the Dismal Swamp Region,' *National Herbarium*, V (1901), No. 6; J. F. Ariza, 'Dismal Swamp in Legend and History,' *National Geographic* (July 1932), pp. 120-130.

[3] Valuable source material on this region used in the preparation of this account has been uncovered by recourse to two splendid indices: Dr. E. G. Swem, *Virginia Historical Index*, and Professor Joseph K. Roberts, *Geological Bibliography of Virginia*.

[4] William Byrd, *Description of the Dismal Swamp and a Proposal to Drain the Swamp*, Edited by E. G. Swem (1922), p. 17.

[5] William K. Boyd, *William Byrd's Histories of the Dividing Line betwixt Virginia and North Carolina* (Raleigh, 1929), p. 70. See also American Guide Series, Federal Writers' Project, State Guides for North Carolina (1939) and Virginia (1940).



The earliest known map of Lake Drummond from a Survey of lands in the Virginia part of Dismal Swamp. Prepared by Washington's Surveyor, Gershom Nimmo, and dated Norfolk, 20 November 1763

Courtesy of the Library of Congress

Cypress Dugout canoe on Washington Ditch in Dismal Swamp

From photographs by the Author, October 1936

by flies and forced to sleep on cold, soggy ground. With feeling Byrd entered in his journal on 15 March 1728, 'never was rum, that cordial of life, found more necessary than in this dirty place.'[6]

That his deductions were biased and not always accurate may be attested by the fact that no less an authority than George Washington later described Dismal Swamp as a 'glorious paradise' abounding in wild fowl and game, setting the key for virtually countless subsequent writers who have almost fallen over backwards to extol its healthiness and charm.

Not long after the Dividing Line Expedition, William Byrd worked out a proposal to drain Dismal Swamp by ditching. He noted coincidently the 'advantage of making a channel to transport by water-carriage goods from Albemarle Sound into Nansemond and Elizabeth Rivers.[7]

The plan was never given serious consideration at the time because of the expense involved, but it is interesting to this account in marking the inception of the idea of digging the ship canal through the swamp which was actually begun sixty years later.

Of Norfolk, as he saw it in 1728, Byrd wrote on 1 March:[8]

> This place is the mart for most of the commodities produced in the adjacent parts of North Carolina. They have a pretty deal of lumber from the borders of the Dismal, who make bold with the King's land thereabouts without the least ceremony. They not only maintain their stock upon it, but get boards, shingles, and other lumber out of it in great abundance.

That a direct route through which trade goods might flow was a crying need, may be shown by the fact that at this period two roads starting at Edenton made a circuitous route around each side of the swamp finally meeting below Norfolk at Great Bridge, whence the produce was taken by boat up to the city via the southern branch of the Elizabeth River.[9] As Byrd observed, the borders of the swamp were being nibbled at by settlers who encroached upon it more and more in their quest for timber. As they penetrated deeper, the problem of getting out the wood became more difficult and was but incompletely met by the creation of 'corrugated' roads—trails with beds of transverse-laid logs. Wood-cutters' and shingle-makers' shanties sprang up and even settlements, one of which, located on the White Marsh Road near Suffolk, bore the all too descriptive name of Dismal Town.

George Washington became interested in Dismal Swamp in 1763 in

[6] Boyd, op. cit., p. 66.
[7] Byrd, op. cit.
[8] Boyd, op. cit., p. 36.
[9] Thomas J. Wertenbaker, *Norfolk—Historic Southern Port* (Durham, 1931), p. 34.

which year he and five associates formed a company of which he was manager, self-styled as 'Adventurers for draining the great Dismal Swamp.' This company acquired some forty thousand acres of rich timberland valued by their owners at $20,000 and said to contain 'the finest cypress, juniper, and other lofty wood.'[10]

Washington's diary records in glowing terms his first visit into the swamp on 26-28 May 1763.[11] Later, the company's surveyor, Gershom Nimmo, examined the land and his map (Plate 13), dated Norfolk 20 November 1763, shows Lake Drummond and the 'corduroy' causeway running to it from the west by Dismal Town.[12]

Washington's company was chartered by the Virginia Assembly in January 1764 and an act was passed 'to enable certain adventurers to drain a large tract of marshy grounds in the counties of Nansemond and Norfolk' and to permit them to 'enter upon and . . . make such canals' as they saw fit.[13]

In all, Washington made at least six separate visits into the swamp[14] and, on the basis of his having stated the possibility of digging a ship canal through it, historians have credited him as being the actual moving spirit behind the work. This assumption, easily made in the light of Washington's prominence, is not in accord with the facts, for he definitely said that he considered the venture too expensive to be practical, stating in a letter dated at Mount Vernon on 31 March 1784 to his friend Dr. Hugh Williamson, Delegate in Congress from North Carolina, that 'to attempt such a [ship] canal . . . would in my opinion be tedious and attended with an expense which might prove discouraging.'[15] Actually Washington became disappointed in the management of his Dismal Swamp Land Company and he disposed of his interests in it in 1795 at about the time that the canal itself was really making progress. A few years before, on 8 April 1787, he had written to Henry E. Lutterlock regretting that 'the Company are so dispersed and, in a manner inattentive to the business.'[16] That business was of course lumbering.

Washington had had plenty to occupy his mind during the period intervening since his first visit and once the Revolutionary War was over, his

[10] John C. Fitzpatrick, *The Writings of George Washington* (Washington, 1931), XXXII, 350.

[11] Ibid., II, 410. See also Fitzpatrick, *George Washington Diaries* (New York, 1925), I, 189-194.

[12] 'Washington's Real Estate Adventure in Great Dismal Swamp Lands, as drawn & prepared by Gershom Nimmo, the Surveyor,' 5 folio sheets, photostats in the Library of Congress.

[13] *Hening's Statutes* (Richmond), VIII, 18-19.

[14] May and October 1763; November 1766; April and October 1767; October 1768.

[15] Fitzpatrick, *Writings of G. W.*, op. cit., XXVII, 380.

[16] Ibid., XXIX, 197.

chief interest in public works as such centered around 'improving' the Potomac River as a means of establishing a route to tap the virtually untouched resources of the West. His vision of canal building in Dismal Swamp had been solely with the idea of providing the means of getting its products out of the swamp, although when other hands took over and the *through* canal was being pushed, he wrote:[17]

I have long been satisfied of the practicability of opening communication between the waters which empty into Albemarle Sound thro' Drummond's Pond and the Waters of Elizabeth or Nansemond Rivers.

He expressed great satisfaction in a letter dated 30 November 1785 to James Madison 'to hear that our Virginia Assembly were in a way of adopting a mode for establishing the cut between Elizabeth River and Pasquotank.'[18]

However, the route running through the lake was advocated by Washington on the mistaken conviction that there was 'not a difference of more than two feet between one part of the Swamp and another.'[19] The errors of the original surveys were to prove the inadequacy of the estimates to meet the cost of construction which did not cover for the number of locks which it was later discovered would be needed.

Undoubtedly Washington's company had dug numerous small ditch canals as a means of draining their land prior to the inception of the through canal scheme. It is impossible now to date or even name them, however, one 12-foot wide canal ran into Lake Drummond from the west following the route of the 'corduroy' road shown on the Nimmo map. Although now long abandoned and overgrown by vegetation this canal was of considerable importance in early times and still carries the name Washington Ditch.

The earliest reference we have found to this canal is in an advertisement placed in the *Virginia Gazette* on 19 November 1772,[20] by the executors of the estate of Josiah Riddick offering seventy-five acres 'joining the great ditch in the Dismal Swamp, which abounds with great plenty of Cypress timber'. Also for sale was a 'large gondola', presumably used on the ditch. Riddicks' plantation and mill are indicated on the Nimmo map and Washington's diary also records his passing through the land on his way from Suffolk to Pocoson Swamp, a part of the Dismal.[21]

17 Ibid., XXVII, 379. Letter addressed to Hugh Williamson, dated Mount Vernon, 31 March 1784.
18 Ibid., XXVIII, 337.
19 Ibid., XXVII, 379.
20 *Virginia Gazette* (Richmond) (19 November 1772), p. 2, col. 3.
21 Fitzpatrick, *G.W. Diaries*, op. cit., I, 189.

With the nation's capitol, a state of the Union, a mountain, cities galore, and every conceivable type of monument now named for our first president, we submit the suggestion that this modest 5-mile ditch, built in the 1760's, might well have been the first to carry the name of him who, considerably later, became the 'father of his country.' Unquestionably Washington Ditch, overlooked by ambitious civic promoters, is the oldest unaltered but still usable canal in the United States.[22]

Coming from Suffolk, the author entered Dismal Swamp a few years ago along Washington Ditch and discovered on its banks an abandoned 15-foot cypress dugout of obvious antiquity which is now in The Mariners' Museum at Newport News, Virginia, as representative of a once common type of watercraft used in the swamp.[23] (Plate 14).

II.

In 1784, with Governor Patrick Henry of Virginia as one of the promoters, the through canal was first actually proposed and commissioners were appointed to study and recommend upon the canal site. As Washington himself had prophesied,[24] North Carolina was at first luke-warm to the idea, it being felt that the shunting of its goods into Virginia for marketing would be detrimental to the coastal towns of North Carolina. As has been seen, however, produce of the state was forced northward anyway due to lack of accessible ocean ports on the Carolina Sounds.

On 1 December 1787 the Virginia Assembly passed its 'Act for cutting a navigable canal,'[25] the act to commence 'after the passing of a like act by the General Assembly of North Carolina.' The Virginia Assembly prescribed the dimensions of the canal to be 32 feet wide by 8 feet deep and capable of being navigated in dry seasons by boats of 3-foot draft. A causeway flanking the canal was to be 20 feet wide and there were to be 'sufficient' locks measuring 90 feet long by 32 feet wide. The company was incorporated at $80,000 and was to begin work within a year after the passage of the act and to have it completed in ten years. Tolls for all varieties of commodities were set in 'Spanish milled dollars.' The following citizens, prominent in their respective Virginia communities, were named in

[22] Washington Ditch is first shown on a map covering the vicinity of Norfolk drawn by the British during the Revolutionary War, a tracing of which is reproduced in Wertenbaker, op. cit., p. 62. As might be expected, there are many claimants to the honor of being the first 'Washington.' Dr. E. G. Swem, well known historical authority, suggests that Washington County in southwestern Virginia, which was organized in 1776, might well be the first. On the British map Washington Ditch is merely labeled 'Canal'.

[23] See: M. V. Brewington, *Chespeake Bay Log Canoes* (Newport News, 1937), pp. 25, 101, note 17.

[24] Letter to Thomas Jefferson dated Mount Vernon, 26 September 1785, Fitzpatrick, *Writings of G.W.*, op. cit., XXVIII.

[25] Printed in full in *Hening's Statutes*, XII, 478 et seq.

the act as receivers for the Dismal Swamp Canal Company and were authorized to open books and accept subscriptions: George Kelly, Norfolk; John Cowper, Portsmouth; Wells Cowper, Suffolk; Christopher M'Connico, Petersburg; James Heron, Richmond; Thomas Nelson, York; William Lewis, Fredericksburg; and William Hartshorne, Alexandria. A meeting with the North Carolina commissioners was arranged for 12 December 1786, Robert Andrews and John Cowper to represent Virginia.

Although on 12 March 1786 Governor Caswell had written Governor Henry of his intention to lay the canal bill before the North Carolina Legislature, action on it was postponed for the reason stated and it did not pass until the November 1790 session.[26] The following North Carolina citizens were named as receivers: James Gallaway, Rockingham; Robert Burton, Granville; Allen Jones, Halifax; Hardy Murfree, Murfreesborough; John Hamilton, Edenton; Zedekiah Stone, Windsor; and Thomas Harvey, Nixonton.

Despite the fact that all was now ready, subscribers were slow in paying for their shares[27] and as work had still not begun, the Virginia Assembly passed an amendatory act on 25 November 1790 reducing the required dimensions to those 'of sufficient width for vessels that are 15 feet broad.'[28] On 21 November, another act permitted the treasurer of the Commonwealth of Virginia to subscribe for fifty shares in the Dismal Swamp Canal Company.[29]

With the route but incompletely surveyed and only a hazy idea of what the ultimate cost would be, the company, operating by private subscription, finally began digging in 1793 with hired slave labor, starting from each end. In the absence of steam shovels, dredges, dynamite, and other modern methods of canal construction, it is almost impossible to measure the difficulties which the builders encountered, made even worse by the unfavorable terrain through which the canal was run. (Plate 15) The route laid out connected Deep Creek, a tributary to the southern branch of the Elizabeth River, with Joyce's Creek, a tributary of the Pasquotank. Since the canal neither went through Lake Drummond nor followed the fall line, it is surprising that a straight course connecting the two streams was not selected. The route followed from Deep Creek was approximately south by west until half the distance was covered, then the canal bent obliquely to the left at the 'Angle,' the remaining cut running approximate-

[26] Walter Clark, *North Carolina State Records* (Goldsboro, v.d.), XXV, 83-93.

[27] *Virginia Chronicle*, 5 January 1793.

[28] Undoubtedly this was an error in the printing of the statute and the dimension was intended to refer to the breadth of the canal as will be seen later on. *Hening's Statutes*, XIII, 145.

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ly south-southeast. The canal passed less than three miles to the east of Lake Drummond in the neighborhood of the Angle, the twenty-odd mile excavation being about equally divided between the two states. Although provision had been made by the 1787 Act to draw water from Lake Drummond if necessary to feed the canal, it was at first mistakenly assumed that sufficient seepage would enter its west bank to keep it in operation.

In 1796, three years after the first shovel of earth was turned, the French traveller and author, the Duke of La Rochefoucauld, inspected the work and reported five miles completed in each state. He said that he examined the Virginia end with some care and considered the work 'well executed' although he continued with courteous continental understatement that it appeared to him 'surprising . . . that no levels have been taken [and] it is not yet known what number of locks may be necessary.'[30]

As funds trickled in, the slow nibbling process continued, and on 24 February 1799 the Canal Company president, Thomas Newton, wrote to the governor of Virginia: 'I have great hopes that by next Xmas a road will be finished through the whole of the Dismal and that the cuts for the canal will meet'.[31] These hopes were not soon realized, for on 28 October 1801 Thomas Newton again wrote the governor mentioning that 'excessive high price of labor . . . retarded the work'.[32]

Even though the canal was still not through, the parts that were completed were immediately put to use and, in the report of the annual meeting of the company on 17 November 1801, it was stated that since the last meeting a 'large' lock had been constructed at the south end and communication opened between it and the Pasquotank to admit boats of 5-foot beam by 2-foot draft. A smaller temporary lock 'some distance' from the 'Great Lock' was in operation, the canal itself being eleven feet wide and two feet deep as far north as the Virginia line. 'Boats like those used on the James River Canal now are employed on each end of the canal and only the middle is now to be cut,' the report concluded.[33]

Three more years passed. Once more Newton wrote to the governor: 'Boats should pass through by next summer . . . . Only exertion and some money is wanting'.[34] The company's annual report of that year, 16 November 1804, stated that a mile and a half was still to be dug, that the road was passable for foot and horse and that during the winter it was expected

[30] LaRochefoucauld-Liancourt, *Travels through the United States of North America . . . 1795, 1796, 1797* (London, 1799), II, 7-8.

[31] *Calendar of Virginia State Papers*, IX, 6.

[32] Ibid., IX, 217.

[33] Ibid., IX, 221-222. See Appendix for mention of James River Canal.

[34] Ibid., IX, 418.

it would be suitable for carriages. Mention was made of the necessity of digging a feeder ditch in to Lake Drummond to get water, as well as the need for three more sets of locks.[35]

Once the road was completed a stage coach route was established and goods began to flow through from both directions permitting the company at long last to collect tolls in sufficient amounts to help defray the expense of continuing the construction of the canal. At about this time a hotel was erected beside the new road straddling the state line. Named the 'Lake Drummond Hotel,' but later on referred to as the 'Half-Way House,' this incredible hostelry long maintained a colorful if somewhat shady existence.

The 128-foot building (Plate 16) was equally divided between each state and, due to its comparatively inaccessible location, soon became a notorious dueling ground and hide-out. Fugitives from justice in Virgina reposed as contentedly on the North Carolina side as did North Carolina fugitives on the Virginia side.[36] Many duels were fought there, the contestants probably facing each other and firing across the state line. Still another class of visitor was catered to because of less stringent marriage laws in North Carolina, and the 'Lake Drummond Hotel,' half of it being just over the border, became known to eloping couples as the Gretna Green of lower Virginia.

The owner, William Rogerson, furnished the press with the following description of the place just prior to its sale at public auction on 15 December 1830:[37]

> This establishment (being situated on the N.C.—Va. line, one half the building in each state), is in a superior degree, calculated to render facilities for matrimonial and duelistical engagements and should the purchaser become a magistrate, the facilities would be much increased though rather detrimental in the latter. Indeed it is a stand fully applicable for all the purposes of life, as eating, drinking, sleeping, marrying, duelling, &c. &c. in all its varieties.

Apparently the purchaser, one Amalek C. Williams, wished to emphasize the law abiding and scenic aspects of the resort under his management, for two years later his 'card' advertised that the hotel was 'divided into suitable close & neat lodging rooms' situated 'upon the banks of the handsomest canal in the U. States, along which runs the best road on the whole Atlantic Coast'.[38]

[35] Ibid., IX, 422-424.

[36] Federal Writers Project (American Guide Series), *North Carolina: a Guide to the Old North State* (Chapel Hill, 1939), 275-277.

[37] Norfolk and Portsmouth *Herald*, 8 October 1830.

[38] Elizabeth City *North Carolina Advocate*, 15 January 1833.

Dinner cost 50¢, supper 37½¢, lodging 12½¢. Board by day was $1.00, by week $4.50, and by month $18.00. The advertisement concluded with the surprisingly forthright announcement that:

> Marriage parties can at all times be accomodated to their utmost wish—in half an hour after their arrival 'the blushing bride salutes her wedded lord'.

It is probable that the celebrated Irish poet, Thomas Moore, stayed at the 'Lake Drummond Hotel' on the occasion of his visit to Dismal Swamp in 1803. He was much impressed with the region and was inspired to write a melancholy ballad, 'The Lake of the Dismal Swamp,' wherein a young man becoming deranged upon the death of his sweetheart imagines that she is not dead but lost in the swamp, the poem being descriptive of his wanderings in search of her:

> They made her a grave too cold and damp
> For a soul so warm and true
> And she's gone to the lake of the Dismal Swamp
> Where all night long, by a fire-fly lamp
> She paddles her white canoe.

The poem is printed in full in many books and articles descriptive of Norfolk and vicinity[39] and is, as one writer smugly observed, 'familiar with every person of ordinary information.'[40]

III.

> During this year a junction has been effected betwixt the waters of Elizabeth River and Pasquotank.... The canal is cut its full width [15 feet] and depth (except about 4 miles cut full depth but half width) ... It is navigable to admit shingle flats to pass the whole distance river to river.[41]

This triumphal announcement appeared in the 1805 Annual Report of the Dismal Swamp Canal Company. However, the president, Richard Blow, reminded his stockholders that locks at each end of the canal were still to be built as well as the feeder ditch to Lake Drummond and that the time prescribed by law for the completion of the canal would expire on 19 September 1806 unless the legislatures could be persuaded to extend it.

Undoubtedly during 1805 there was a 'first' vessel, if only a shingle flat, to go completely through the canal. However, no record has been

[39] As, for example, in William S. Forrest, *Historical and Descriptive Sketches of Norfolk* (Norfolk, 1853), p. 485.

[40] Robert Arnold, *The Dismal Swamp and Lake Drummond* (Norfolk, 1888), p. 20.

[41] *Cal. Va. State Papers*, IX, 460-461.

found covering such a voyage, but as each improvement or enlargement was subsequently made to the canal, we frequently find contradictory mention in contemporary newspapers of 'first' boats making the transit.

Beyond finishing the cut to full width, apparently little was done to the canal for the next two years. Mr. Blow described the works more fully in a letter dated 17 November 1807 for a Congressional investigation for, as will be seen later, the Federal Government was beginning to evidence an interest in the canal for strategic reasons.[42] 'At present', he wrote, there were only two locks, one 3½ miles from Deep Creek and the other six miles from the south end. Another set was needed in the middle distance near the Northwest River and others at each end of the canal. The existing locks, built of squared juniper timbers and costing about $300 apiece, measured 75 feet in length by 9 feet in width with 6-foot depth over the sills. The vessels in use on the canal were flats, 30 to 40 feet long, by 4 to 6 feet wide, drawing 18 to 24 inches loaded. These craft carried from 4,000 to 8,000 juniper shingles, 3 feet long and 6 inches wide, which were the principal cargo and which, of course, emanated from the swamp. Cargo in transit by boat was practically nil. The following tolls were charged in 1807:

18″ & 22″ shingles	25¢	per 1000
24″ "	33¢	" "
36″ "	50¢	" "
Barrel Staves	50¢	" "
Hogshead "	75¢	" "
Carts passing the road	25¢	
Wagons " " "	50¢	
Horse and man	12½¢	
Head of cattle	6¢	
Hogs and sheep	2¢	

Mr. Blow reported regretfully that his company's funds were practically exhausted and that, although it had 'six negroes belonging to it,' only twenty to thirty hands could be hired in the summer and but half that number in winter. Maintenance and salaries cost $1,500 annually.

Although the state legislatures granted the company a further time extension, additional funds were not available and the canal was to remain little more than a muddy ditch for some time to come. The annual report for 26 November 1809 mentioned that although the company had 'accomplished their cut throughout, . . . They regret their further inability to render it once more generally useful by erecting the necessary locks.

42 Tenth Congress, 1st Session, No. 34, *Roads, Canals, Harbors and Rivers*, 'Answers to Questions respecting the Dismal Swamp Canal,' pp. 209-212.

Incalculable expenses were met in its progress through a heavily timbered morass.'[43]

Meanwhile, conditions were approaching which would soon bring about the War of 1812 with England and the need for a 'back door' route was being more keenly felt. President Jefferson's onerous embargo[44] having played havoc with American shipping, the Dismal Swamp Canal, had it been really completed, could have served a very important purpose.

This belated impetus to its construction was effective in bringing about the building of the remaining locks although the canal was still unsuitable for anything other than especially built shoal draft flatboats. A subsequent 'first' passage through the canal was mentioned in Governor Barbour's report to the Council of State on 12 May 1812. On 30 April he had visited the canal and 'witnessed the junction of the waters of the Sound and of the Chesapeake[45] . . . the consummation of 20 years labor . . . and passed from one to the other in a boat containing 10,000 shingles amidst the shouts and applauses of the spectators.'[46]

In 1813 the Congress passed a new embargo act restricting even coastwise shipping and by the next year the British had begun to put teeth into their blockade of the Atlantic seaboard. The canal could then have served a strategic as well as a commercial purpose, particularly since the Gosport Navy Yard lay within a few miles from its northern entrance at Deep Creek and gunboats could have been shifted up and down the coast as needed instead of being bottled up in the Elizabeth River. Many people vividly remembered the burning of Norfolk in 1775 and complete destruction of all shipping in the Elizabeth River.

The first recorded passage through the Dismal Swamp Canal of a vessel other than a shingle flat did not take place until June of 1814 when a 20-ton boat arrived at Norfolk from Scotland Neck on the Roanoke via the canal.[47] It was a disappointment to the company that its facilities did not immediately attract the upper Roanoke trade and it was not until a year later that a similar voyage was chronicled. On 15 December 1815 a boat arrived at Norfolk from the Stanton River via the Roanoke, Albemarle Sound, Elizabeth City and the canal. A barrel of flour was brought as a present to the Borough of Norfolk and the intention of the voyage was

[43] *Cal. Va. State Papers*, X, 77.

[44] In force between 22 December 1807 and 15 March 1809. Of the embargo, Professor S. E. Morison wrote: 'Jefferson's persistent faith in it could be explained only by enmity to American shipping or to pathological causes'. *Maritime History of Massachusetts* (Boston, 1921), p. 192.

[45] Virtually identical phraseology had been used by Mr. Blow in 1805 setting the stage for undoubtedly the really first passage through the canal.

[46] *Cal. Va. State Papers*, X, 138.

[47] Norfolk *Gazette & Public Ledger*, 11 June 1814.

to demonstrate how the products of that section could reach tidewater.[48]

Although a large amount of produce was transported by wagons on the new road, the failure of the canal itself to be of any real benefit to the country during the War of 1812 was more than anything else responsible for a belated examination of its properties by competent engineers on behalf of the United States Government. Major James Kearney, after mapping the whole area, reported to Congress on 5 November 1816 and stated that when the canal, 'if it may be so denominated,' had been projected twenty-five years before, 'it was believed that the country through which it was to be cut was a perfect level'. After pointing out the errors in the original plans he concluded with the statement that 'the late war and other circumstances combine to force into view the absolute necessity of a more liberal and enlarged communication'. In 1815, 'during the few weeks it was open for navigation', Kearney reported that over a million staves and six and one-half million shingles had been shipped through it.[49]

The canal building fever which swept the country in the period following the war was undoubtedly one of the 'other circumstances' to which Major Kearney referred. This was of course primarily directed at opening new trade routes through to the West and resulted in the canal building races in which vied, among others, the backers of the Erie, the 'Main Line' of Pennsylvania, the Potomac River (later Chesapeake and Ohio), and the James River-Kanawha canals. It will be recalled that in 1825 the Erie Canal connecting Lake Erie with the Hudson River was the first through and its extraordinary success was largely responsible for the pre-eminence of the port of New York and resulted in making that canal known today to every schoolboy in the country. These canals were, however, strictly commercial in approach and, as such, were later to fall before the railroads as carriers of freight when the 'Canal Era' gave way to the reign of the 'iron horse'. The Dismal Swamp Canal, together with the Delaware and Chesapeake and the Cape Cod Canal, belongs to the class of strategic canal in which the movement of the whole ship is paramount and this is, of course, the prime reason for its present existence.

Although the limitations of the Dismal Swamp Canal were by this time universally acclaimed, not much was immediately done about them. Some of the existing locks were replaced by stone walled chambers, 96 feet long by 18 feet wide, the channel was deepened and the feeder ditch dug to Lake Drummond. At the same time, the Land Company, a separate or-

[48] William H. Stewart, *History of Norfolk County, Va.* (Chicago, 1902), p. 28.

[49] Fourteenth Congress, 2nd Session, No. 71, *Report of James Kearney*, 'Chesapeake and Delaware Canal and Dismal Swamp Canal,' pp. 704-708.

ganization, continued to expand small ditch canals throughout the swamp for transporting lumber. Mention has already been made of Washington Ditch. Another of these, the White Oak Spring Canal, known also as Goffs Cut or the Corapeake Lumber Canal, is recorded as early as 1816.[50] It ran due west towards Gates County, North Carolina, from a point south of the Angle and some maps show that it reached a tributary of the Roanoke River. The Riddick Canal, five miles long and running north and south parallel to the main ship canal, connected the Corapeake Canal with the south end of Lake Drummond. In 1818 the Virigina Assembly authorized another small canal to connect the headwaters of the Northwest River to the eastward with the main branch of the ship canal, ten miles south of Deep Creek locks. These canals reached new timber grounds and the latter furnished a connection with Currituck Sound, but naturally contributed nothing to the through traffic.

Although also a lumber canal, the most important waterway other than the main canal itself consisted of one first built around 1810 which ultimately connected the Nansemond River via Shingle Creek near Suffolk with the northwest side of Lake Drummond. This cut, the Jericho Canal, became a favored route for visitors entering Dismal Swamp and will be referred to later.

With Major Kearney's survey in progress, the Virginia Legislature passed an act on 14 February 1816 granting the company a further time extension to carry out the improvements recommended and authorizing it to raise $50,000 by lottery. For some time this had been an approved method of financing public works, the drawings being adequately supervised and advertised in the press. Although occurring later on, the *Herald's* announcement on 4 February 1829 of the Virginia State Lottery for the Benefit of the Dismal Swamp Canal at Cohen's Lottery and Exchange Office, Norfolk, is typical. Whole tickets cost $20 apiece, the smallest denomination being one-eighth at $2.50. Prizes were substantial.

An interesting sidelight on the cost of what was about to be considered an important national project may be gained from an examination of the company's report of 1824. Total capital expended amounted to $453,748-.91. Tolls received up to 1 December 1823 were $107,853.31. The following annual salaries were listed: M. Parks, superintendent and engineer, $1200; Garrett, overseer of workmen, $360; Carr, toll keeper, $360; and two lock keepers, $144 each.[51]

[50] *Cal. Va. State Papers,* X, 458.

[51] Eighteenth Congress, 2nd Session, House Doc. No. 86, 'Return of the State of the Dismal Swamp Canal Company,' 30 November 1824.

Another first passage is recorded on 28 April 1823[52] when a schooner, said to be the first completely loaded with North Carolina freight for Norfolk, such consisting of cotton, flour, tobacco, and hogs, traversed the canal, her arrival being 'appropriately hailed with joy.' This vessel was the *Rebecca Edwards*, Captain Burgess of Halifax, North Carolina, and is, as far as can be determined, the first craft using the canal to be identified by name.

From her enrollment papers preserved in the National Archives the *Rebecca Edwards* is described as having been built at Norfolk in 1819 with one deck and two masts, measuring 65'6" x 12'6" x 4'6" and 35 37/95 tons. Life Holden was her first owner and captain and she was sold on 18 February 1823 at which time Captain Burgess probably acquired her, although subsequent documents are no longer extant.

[52] Forrest, op. cit., pp. 163-164.

(To be continued)

APPENDIX

While it is obviously impossible within this article to cover the histories of all early canals in the United States, our statement that the Dismal Swamp Canal is undoubtedly the oldest surviving artificial waterway in this country needs more than a casual footnote reference for substantiation. In the matter of historic 'firsts' in practically every field including canals, the present attributed importance of having been first is disproportionate to the value of the past event itself and claims often have to be so qualified as to become absurd. One can cite the proponents of the various claimants to the invention of the first steamboat as one often argued but relatively insignificant fact.[1] Difficult as is this question to solve, the matter of canals is even more so, the problem in this instance being where to establish the initial date. It is said that the present Cape Cod Canal was proposed in earliest colonial times when Indians used the narrow isthmus as a canoe portage route and, in Samuel Sewell's diary for 1676, definite mention is made of plans to dig a canal. The subject of the Buzzards Bay Canal (another name for the same waterway) was repeatedly considered by state and national authorities during the whole of the nineteenth century. However, the canal was not built and opened until 1914 and in the interim many good ships had been lost on Nantucket Shoals.

With other canals long periods often elapsed between their authorization by legislative action and the actual commencement of digging. Then too, the inception of work was no indication that it would be pushed along and many half-dug canals (the first Delaware and Chesapeake for example) remained that way for considerable time before new financing or company reorganization finished the jobs. Likewise, as divisions were completed, those parts were immediately put to use even though years might elapse before the whole waterway was built. With the James River—Kanawha

[1] See: James T. Flexner, *Steamboats Come True: American Inventors in Action* (New York, 1944).

Canal, even though almost two hundred miles were dug, the connection over the mountains was never made and the waterway was abandoned before it was ever completed as initially planned. And finally, even though they might have been finished as originally laid out, canals were often found to be available only for such limited navigation that later on they had to be completely rebuilt.

In capsule form the following chronology covers the Dismal Swamp Canal:

1728 Proposed by William Byrd.
1787 Authorized by Virginia Legislature.
1790 Authorized by North Carolina Legislature.
1793 Work on the canal began.
1805 Limited through navigation for flat-boats.
1826 Enlarged as a shoal draft ship canal.
1899 Enlarged in substantially its present form.

Every one of the above dates might be considered as the date when the canal 'began.' However, for comparative purposes in this account we have arbitrarily selected as our point of departure the dates when work on the respective canals first commenced, as this point seems to present the picture in its fairest light. Since there were only a comparatively limited number of American canals under construction during the eighteenth century, the whole field may thus be briefly considered here. Today but a handful of these canals survive and since the Dismal Swamp Canal was actually commenced before any of them, we have assigned to it the priority status.

The text has mentioned the fundamental difference between a commercial canal and a ship canal. To develop this further, in the former case the vessels used might be likened to the railroad cars of today. They were especially built to transport either freight or passengers and their dimensions were as exactly gauged to the size of the locks they were required to pass in traversing the canal as are railroad cars to their tracks. Canal boats could be considered seaworthy only for the canal itself and never got further out to sea than the length of the tow-rope which bound them to its banks. They had no means of propelling themselves (steam was a long time in coming to the commercial canals), being entirely dependent upon the horse and tow-path. Masts and rigging were precluded by the 'low bridge—everybody down.'

The commercial canals themselves were envisaged as the means of tapping sources of western frontier raw materials and bringing them back to the industrial centers of the East. To this end, spur lines were dug deep into the hinterland. At colossal expense, canal tunnels were dug through mountains, and aqueducts, over which the canal boats could float, were thrown across river, for as Benjamin Franklin had written, 'Rivers are ungovernable things . . . canals are quiet and always manageable.'[2]

Their 'quiet' journeys completed, canal boats would be brought into the very heart of the cities and this fact later on caused canals to fall into disrepute for they became handy containers for anything that anybody wanted to get rid of. Washington's 'Old City Canal' which connected the Potomac and the Anacostia Rivers by a channel now filled in and occupied by Constitution Avenue, Canal and Second Street, S.E., was described in 1860 as the 'town's greatest nuisance . . . an unsightly and odorous channel . . . fallen into disuse, save as a receptacle for sewage'.[3] Their

[2] A letter from Franklin to the mayor of Philadelphia dated 22 August 1772 and quoted in Seymour Dunbar, *A History of Travel in America* (Indianapolis, 1915), III, 772.

[3] Margaret Leech, *Reveille in Washington, 1860-1865* (New York, 1941), p. 7.

functions and methods of operation being identical, it is of course obvious that the commercial canals, expensive of upkeep, should fall before the expanding railroads although a few strictly commercial canals have managed to survive. Visitors to the quaint little artist colony town of New Hope, Pennsylvania, well remember the charm of the Lehigh Coal and Navigation Company's leisurely waterway which flanked the upper Delaware River until 1931.

With the ship canal the picture was reversed. Subject only to the top limitation of the size of the waterway and locks, if they were present, it made no difference whether the vessels were big or small and draw bridges accommodated for masts and superstructures. To the craft using a ship canal, the canal passage was but an incident in its voyage, permitting it to take an inside route to avoid a stormy coast, or to shorten an otherwise lengthy journey and, in conjunction with other units of the Intracoastal Waterway, the Dismal Swamp Canal affords a quiet water route inside Cape Hatteras.

According to Ringwalt,[4] the first canal to be constructed within the present limits of the United States was a private one built in 1750 in Orange County, New York, by the lieutenant-governor for the purpose of transporting quarry stone. Apparently its existence was ephemeral for particulars covering its length and size are not found in Special Examiner Purdy's report on past and present canals of the United States prepared for the Tenth Census.[5] Washington Ditch, built by Washington's Land Company in the 1760's, has been mentioned in the text and was likewise a private enterprise. Apparently the first canal of more than local interest to be chartered in this country was the James River Canal. This waterway was authorized by the Virginia Legislature on 5 January 1785 and work began soon after on a seven-mile channel with a series of locks to circumvent the falls of the James at Richmond. In all, three separate companies worked on this commercial waterway and the plan was to effect a junction over the mountains with the westward flowing Kanawha, a tributary of the Ohio, thus creating a through route to the West. The canal got off to a good start but work on it soon bogged down. It was not until 1832 that the third company took over and the canal was only completed to Lynchburg by 1840. By 1856 it had reached its westernmost point at Buchanan, Virginia, 196½ miles from Richmond, but railroads had begun to take away its trade and it was abandoned in 1880.[6]

The Potomac River 'improvements' were authorized only a matter of months after the James River Canal when a company of which Washington was elected president was organized on 17 May 1785. It was intended to have a series of five short lock canals give passage around the various falls and rapids of the Potomac, and to clean out the river channel between them. Although this work was completed in 1802, it proved to be inadequate except for seasons of flood. A continuous canal designed to remedy the defects was commenced with much ceremony on 4 July 1828. President John Quincy Adams was to turn the first shovelfull of earth but his spade hit a rock and he had to try again. The canal was not finally opened

[4] J. L. Ringwalt, *Development of Transportation Systems in the U. S.* (Philadelphia, 1888), p. 41.

[5] Thos. C. Purdy, 'Canals', *10th Census of the U. S., 1880* (Washington, 1883), IV. See also: Alvin F. Harlow, *Old Towpaths: The Story of the American Canal Era* (New York, 1926); and Dunbar, op. cit.

[6] W. F. Dunaway, *History of the James River and Kanawha Co.* (New York, 1922).

throughout until 5 October 1850 when communication was established between Washington, D. C., and Cumberland, Maryland, 179½ miles away, by which time the idea of continuing the canal on across the mountains had been given up for good.

The Chesapeake and Ohio Canal gave up the ghost in 1924 but in 1938 the Federal Government purchased it and restored a 22-mile section above Georgetown which now exists as a National Park project to commemorate the former glories of the 'Canal Era.'[7] At the time of writing, this memorial is being seriously threatened by a much contested proposal by the United States Army Engineers to build a series of dams across the Potomac, the lowest one of which would inundate the old canal works.

As stated, the Dismal Swamp Canal was chartered in 1787 making it the third to be so authorized in the United States and work was begun on it in 1793. Other eighteenth-century canals, now abandoned, would include the Middlesex Canal authorized by Massachusetts on 25 June 1792 to afford a passage around the falls of the Merrimac; begun in 1795, opened in 1797, but later expanded. The Union Canal of Pennsylvania falls into this group having been first advocated by William Penn, surveyed to establish a channel between the Schuylkill and the Susquehanna near Reading in 1762, commenced in 1791, four miles opened in 1794, and finally completed in 1827, work on it having been suspended between 1795 and 1821. There were other early Pennsylvania canals, the most important of which was termed 'The Main Line of Pennsylvania of Public Works' and consisted of a railroad from Philadelphia to Columbia and then a canal which paralleled the Susquehanna for 172 miles to Hollidaysburg and there transferred sectional canal boats over the mountains to Johnstown on the Allegheny Portage Railroad. Still other rivers were equipped with locks to give passage around their falls and rapids prior to building continuous flanking canals. One of the earliest was the South Hadley Falls Canal on the Connecticut River, completed in 1794.

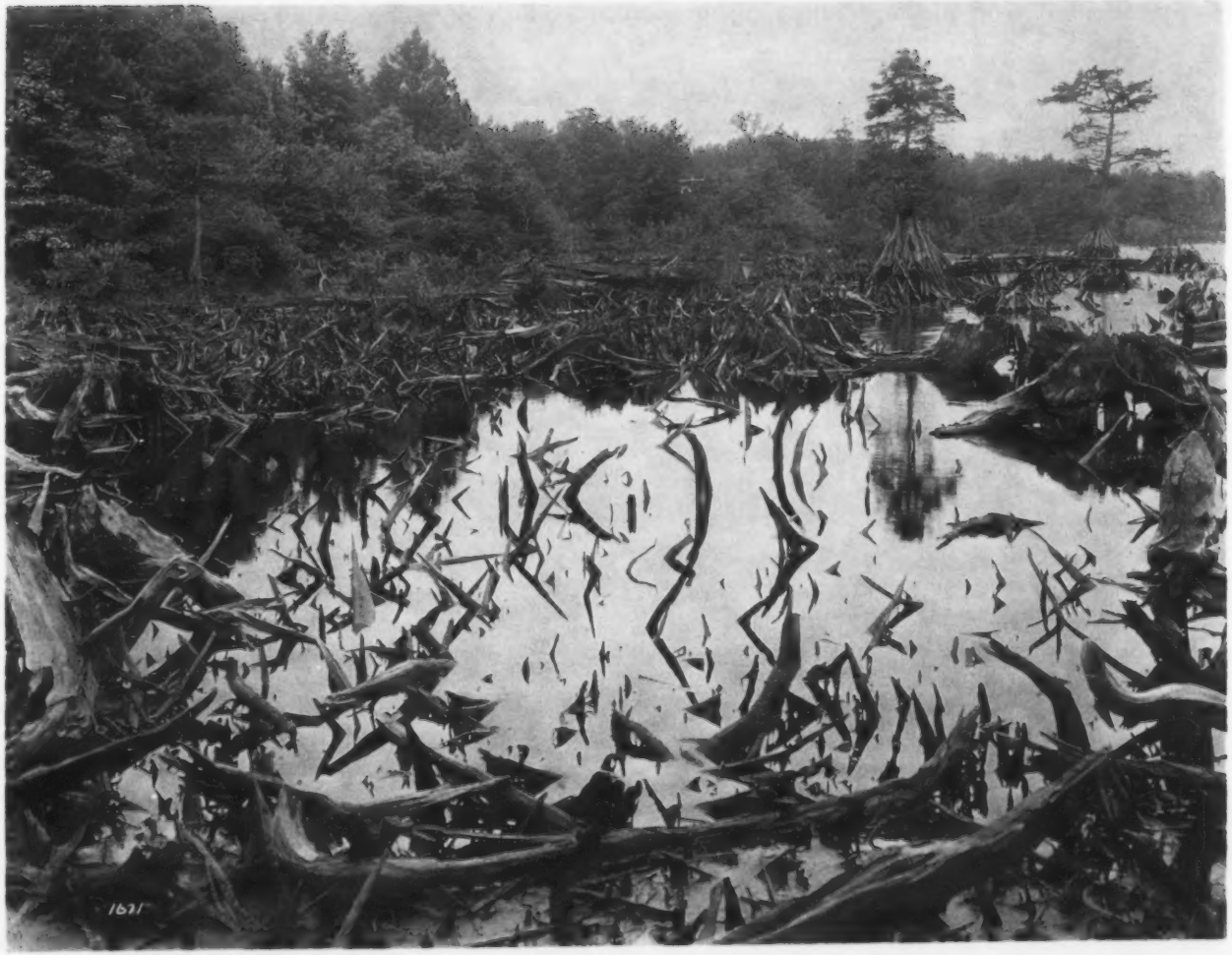
However, with the exception of the Dismal Swamp, the only eighteenth-century waterway surviving in 1880 was the Carondelet, or 'Old Basin,' Canal connecting New Orleans and Bayou St. John with Lake Pontchartrain and today this might be considered as the only other justifiable claimant to the title of 'first.' This 6½-mile channel was built in 1794 by slave labor, but being only fifteen feet wide was replaced by the Orleans Bank Canal in 1832 although it still served as a drainage canal for the city of New Orleans. It was later enlarged and deepened to seven feet, the total cost expended on it up until 1906 being $150,000.[8]

Although the most successful of all American commercial canals, the Erie was a comparatively late-comer on the scene. Governor Sir Henry Moore had in 1768 advocated an 'artificial river' to unite the Hudson with the western lakes, but the route was not actually surveyed until 1810. On 26 October 1825 the first boat passed all the way through its 365-mile route which survives today in the modern and efficient New York State Barge Canal.

A few other canals which played an important part in the development of this country and which were also of early nineteenth-century origin would include the

[7] *Chesapeake and Ohio Canal* (Washington: National Park Service Monograph, *c.* 1942).

[8] Special Report of Census Office, *Transportation by Water, 1906* (Washington: Department of Commerce, 1908), p. 43.



Cypress roots in the Dismal Swamp. The greater part of the Canal was dug through similar terrain

From a photograph courtesy of the Norfolk Advertising Board

A view of the Dismal Swamp Canal, looking North from the State Line, after the Lithograph published by C. Hall, Norfolk, 1831. The hotel, by contemporary advertisement, was 'calculated to render facilities for matrimonial and duelistical engagements'

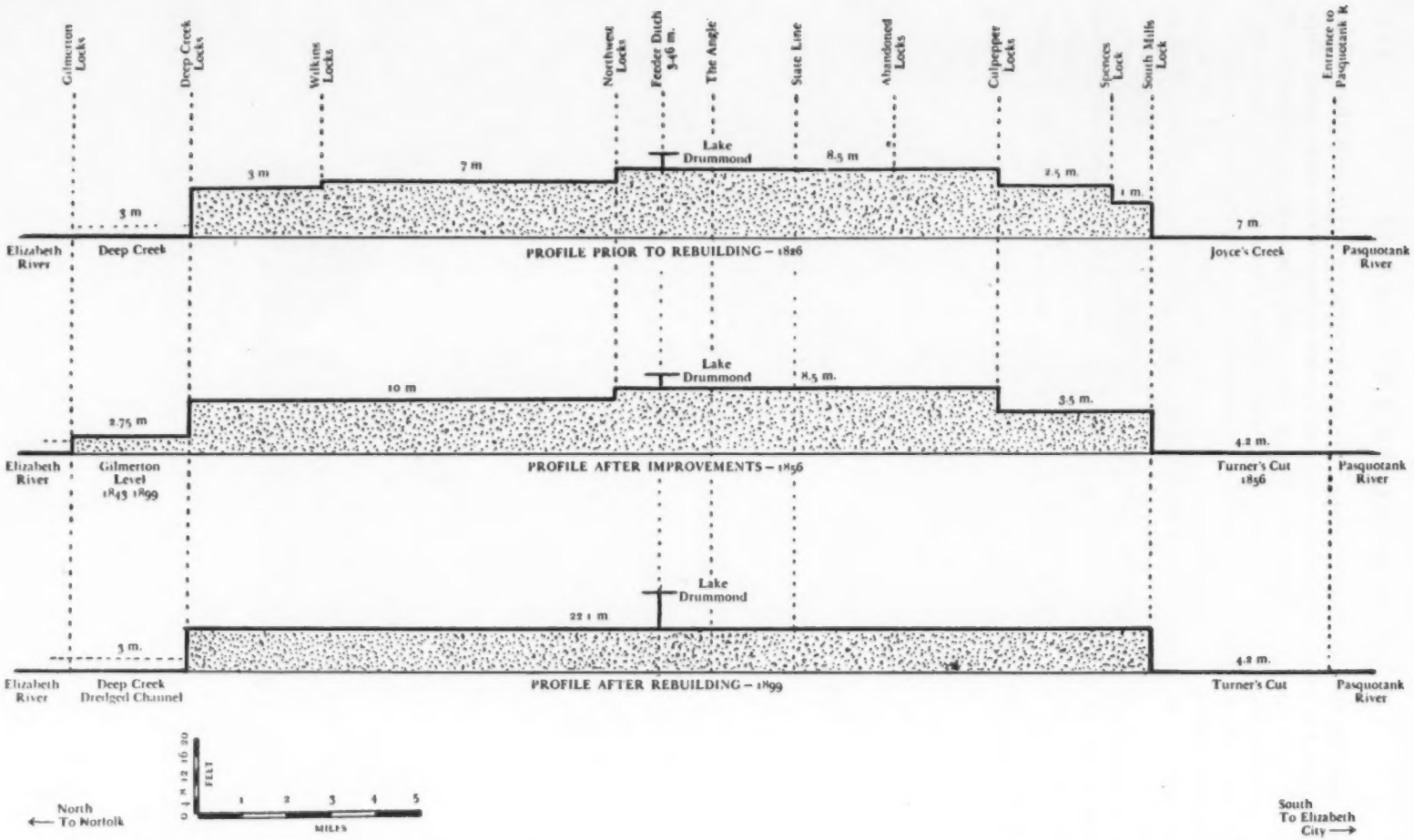
Reproduced by Courtesy of The Mariners' Museum

Chesapeake and Delaware, surveyed in 1764, commenced on a 13½-mile channel in 1804, relocated in 1822, completed in 1829, and today an important ocean-going ship canal; the 1826 Morris Canal of New Jersey; the 44-mile Delaware and Raritan of 1830, now abandoned as a ship canal; the 1829 Miami Canal between Cincinnati and Dayton, Ohio; the 1853-1855 St. Mary's Falls Ship Canal around the rapids between Lakes Huron and Superior and forerunner of the famous Soo; and the 1855-1859 Albemarle and Chespeake, the route which now parallels the Dismal Swamp Canal.

Purdy gives the heydey of the Canal Age as the period between 1825 and 1840. At the time of his 1880 report the total canalage of the United States, both in use and abandoned, measured 4,468 miles—an excavation amounting to billions of shovelsfull. Incidentally the hand shovel had provided the means by which the greater part of the canals were dug.

by C. Hall, Norfolk, 1831. The hotel, by contemporary advertisement, was 'calculated to render facilities for matrimonial and duelistical engagements'

Reproduced by Courtesy of The Mariners' Museum



SURFACE LEVEL PROFILES OF THE DISMAL SWAMP CANAL DURING ITS THREE MOST IMPORTANT STAGES

No attempt has been made to show the channel depths as these were subject to constant variation. Under normal conditions, the mean tidal range in Deep Creek is 3 feet. Tide levels are approximately constant in Joyce's Creek and the Pasquotank.

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Register Tonnage and its Measurement

BY JOHN LYMAN

THE topic of tonnage of vessels is one in which an appalling amount of misinformation is current, even among those rather closely connected with maritime affairs. To the general public it remains a mystery, like many other things that have to do with ships, although ordinary citizens sometimes find themselves encountering questions of tonnage in unexpected ways. Witness the case recently reported of a gentleman whose wife decided she was not married to him after all because the vessel, the captain of which had performed the wedding ceremony at sea, was under seventy-five tons. After the bleak year of 1942 there was heated Congressional debate over the problem of whether our output of shipping, measured in deadweight[1] tons, was greater or less than the loss to submarines measured in gross tons; an argument that left the man in the street bewildered.

The principles concerned in the computation of the different kinds of tonnage are not especially complicated, particularly in this day of ration points, income-tax estimates, and payroll deductions. The householder who has measured the floor area of his home for his precious trifle of fuel oil may already have a fairly good notion of what is involved. The history of naval architecture shows that the prevailing laws on tonnage measurement had a great influence on vessel design as owners sought to keep register tonnage as small as possible in order to minimize port and dock fees, light dues, and other charges based on it. A statement of the tonnage of a particular vessel is an essential part of her description, but it is subject to misinterpretation unless it is accompanied by an understanding of the way in which it is derived. With these ideas in mind, a study of the history and evolution of register tonnage will yield instructive results.

Register tonnage can be briefly defined as *the tonnage mentioned in a ves-*

1 As *register tonnage* is to be the subject of this study, 'deadweight,' 'displacement,' 'yacht measurement,' 'carpenter's measurement,' and other forms of expressing vessel size not regulated by law will be reserved for a possible later paper.

sel's register. Since the register is a legal document the register tonnage must have a basis in law, and it will be found that the principles of American tonnage law have almost all been borrowed from the British, so that it is necessary to begin with the English origins of the ideas of vessel measurement.

For the invention of the *ton*, we seem to be indebted to some long-forgotten guild of coopers in medieval France, who designed the *tun*, a large cask for storing or shipping wine. There is a record[2] that 120 tuns of wine were seized on board an English ship in Rye Harbor in 1212. Since French wines were for hundreds of years the principal English importation, it is natural that a ship's cargo capacity should have been expressed in tuns, both for purposes of freights and charters, and for enforcing the customs. The *tun* was fixed by law[3] in 1423 at not less than 252 gallons. This, if these gallons were the same as the old wine gallon or present United States gallon of 231 cubic inches, would involve a container holding some 33.69 cubic feet, which if cylindrical would be exactly 3½ feet inside diameter by 3½ feet inside height. Allowing for expansion, the thickness of the barrel staves, and the space lost in stowing 'bung up and bilge free,' each tun would occupy about 40 cubic feet of space in the ship's hold.[4]

With the tun or ton firmly established as the measure of cargo capacity of English vessels, the next step was the development of means of determining or predicting the burden of vessels without the necessity of tallying their stowage of winecasks. Obviously this could be done by measuring the internal volume of the hold and dividing by 40 cubic feet; but the mathematics necessary for accurately taking the volume of such an irregular shape as the interior of a ship was beyond the capacity of seventeenth-century shipwrights or dock clerks. Some unrecorded genius of the period however discovered that the product of keel length, breadth of beam inside the planking, and depth of hold, all divided by 100, was a fair approximation of the right result. This rule probably was first adopted by shipbuilders as a basis of measurement in contracts for new vessels; hence the use of *molded beam* (beam *inside* the planking or *outside* the frame timbers) and of keel length instead of water-line length or over-all length, as a builder would naturally be interested in the specification of the most important piece of timber. At any rate the formula $T=K \times B \times D/100$ was

[2] E. W. Blocksidge, *Hints on the Register Tonnage of Merchant Ships* (2nd ed., Liverpool, 1942), p. 1.

[3] E. R. Johnson, *Measurement of Vessels for the Panama Canal* (Washington, 1913), p. 166.

[4] A tun was the largest wine package, and the value of 252 gallons lent itself readily to the formation of smaller units; thus 1 tun = 2 pipes or butts = 3 puncheons = 4 hogsheads = 6 tierces = 7 barrels (36 gallon) = 8 barrels (31½ gallon: the present United States beer barrel) = 14 rundlets = 28 ankers. The present petroleum barrel of 42 gallons is the same as the wine tierce.

adopted in the Royal Navy[5] about 1628. For the hire of merchant vessels by the naval service the burden so found was increased by one-third (or one-fourth) to give 'tons and tonnage' on which the fees were based.

Although the formula was eminently satisfactory for shipbuilders it was hard to apply to a vessel with cargo on board and so the custom grew of measuring the *extreme beam* on the outside of the ship (neglecting wales or doubling strakes), taking the *length on deck* and deducting *three-fifths of the beam* as the overhang forward to arrive at the keel length, and assuming that the depth of hold was equal to *one-half the beam*. Since these conventions eliminated the necessity of the surveyors' clambering about the bilges with a measuring rod, one can guess that they were well received. At about the same time the divisor was changed to 94, although one would expect that a larger number than 100 would have been necessary to allow for the larger beam measurement adopted. The formula[6] thus became $T = \frac{(L - 3/5\ B) \times B \times 1/2\ B}{94}$, which was adopted in the Royal Navy[7] in 1677.

In 1694 a tonnage formula for merchant vessels was established by law for the first time in England; but the law was repealed in two years, and although it was still required that the tonnage be registered, the owner was free under oath to choose any rule he desired. Colonial records indicate that the figure for individual vessels was variable, even from voyage to voyage—perhaps to suit the opportunities of smuggling as offered. In 1720 an act for the prevention of smuggling prohibited importation of spirits into Britain in vessels of less than 30 tons burden, specifying that the tonnage was to be determined as follows:[8]

> Take the keel within board (so much as she trends on the ground) and the breadth within board by the midship beam, from plank to plank, and half the breadth for

[5] R. C. Anderson, 'English Ships, 1649-1702,' *Lists of Men-of-War 1650-1700* (Part 1, London, 1935), p. 1.

[6] Blocksidge, pp. 2-3, makes the interesting suggestion that this formula was based on the assumption that the average block coefficient of fineness of ships at that time was 0.62, and that 3/5 of the total displacement was cargo, the rest being weight of hull and stores. The draft being taken as ½ beam and the waterline length as L – 3/5 B, we would get (since 35 cubic feet of sea water weighs a ton):

$$Deadweight = \frac{3/5\ (L - 3/5\ B) \times B \times \frac{1}{2}\ B \times .62}{35}$$ which is numerically equal to $$\frac{(L - 3/5\ B) \times B \times \frac{1}{2}\ B}{94.09}$$

In the seventeenth century, however, burden was still being thought of chiefly as a volume measurement and it is doubtful if the principle of displacement was as advanced at that time as this analysis would indicate.

[7] Anderson, p. 19. During the seventeenth century elements from both the formulas given were combined in various ways according to date and locality; hence no hard and fast 'tonnage' can be given, even for warships, at this time or for many years later. Compare the tonnage and dimension figures given by Anderson with those of other contemporary Navy lists, such as in G. E. Manwaring, *The Diary of Henry Teonge* (New York, 1927), pp. 292-298.

[8] Quoted from W. P. Stephens, *Traditions and Memories of American Yachting* (New York, 1942), p. 102. See also Johnson, p. 166.

the depth; then multiply the length by the breadth and that product by the depth and divide the whole by 94, the quotient will give the true contents of the tonnage.

In 1773, probably influenced by the establishment about 1760 of *Lloyd's Register of Shipping*, which for the first time regularly listed British merchant vessels, and also by the chartering of dock companies that were by law to base their charges on register tonnage, a tonnage rule was established by Act of Parliament. It was virtually the same as the 1677 Royal Navy Rule except that the length was now to be measured along the rabbet of the keel, from the back of the main stern-post to a perpendicular from the front of the stem-post, under the bowsprit. This law was re-enacted in 1786, 1819 and 1833[9] with slight modifications; thus in the case of a ship afloat the length might be measured from the fore perpendicular to the after end of the water-line, and 3 inches per foot draft be deducted for the rake of the stern-post. This formula became known as *Builders' Old Measurement* because of its continued use by shipbuilders after it ceased to be a legal register tonnage, and the figure derived from it is often identified as B.O.M.

The first United States tonnage law[10] was passed in 1789 and continued in effect without modification until 1864. It was based on Builders' Old Measurement with significant differences. Length was measured 'from the fore part of the main stem, to the after part of the stern-post, above the upper deck,' and only three-fifths of the beam was deducted from it; while breadth was taken 'at the broadest part above the main wales.' For vessels with two or more decks depth was taken as one-half beam, but Congress recognized the necessity for shoal-draft vessels in American waters by specifying that in single-decked vessels the actual depth 'from the underside of the deck plank to the ceiling in the hold' was to be used instead of the half breadth. In the formula, 95 was to be used as the divisor instead of 94, possibly to allow for the greater length on deck as compared with that measured from the foot of the stern-post in the parent rule; although the use of the figure 95 in North American tonnage calculations can be traced[11] as far back as 1694. The tonnage figure obtained from this formula was often identified as C.H.M., for 'Custom House Measurement.'

In the difference between the American and British rules lies the fundamental reason for the difference between the English 'cutter model' and the American 'sloop model' which became apparent after the first interna-

[9] 3 and 4 Wm. IV., c. 55, sec. 16. H. C. Folkard, *The Sailing Boat* (London, 1853), p. 277.

[10] 1 September 1789; re-enacted 2 March 1799: U. S. Stat. L., vol. I, pp. 55, 676.

[11] THE AMERICAN NEPTUNE, II (1942), 338.

tional yacht races of the 1850's. Fig. 1 and Fig. 2 illustrate the differences better than a detailed explanation. The sloop, under the British formula, has nearly twice the tonnage she has under the United States rule; while the cutter, under the United States rule, is almost fifty per cent bigger than under the British formula. These are extreme examples, of course, and in two-decked vessels, where half the beam was taken as the

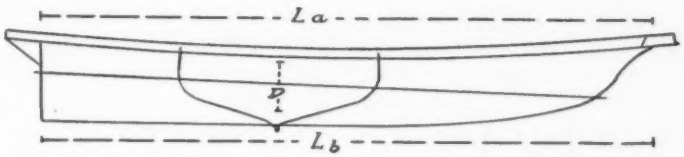

Fig. 1. An American sloop, based on the lines of the yacht *Sylvie* of 1851 in Stephens (op. cit.) p. 10. La = length for American formula = 80 feet. Lb = length for British formula = 80 feet. D = depth of hold = 7 feet. Beam = 24½ feet. Tonnage by American formula = 118; by British = 208.

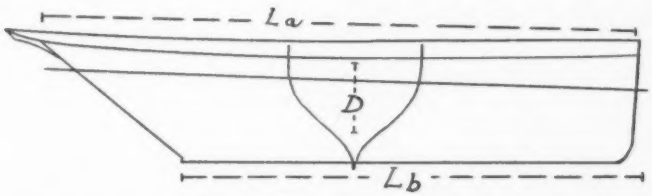

Fig. 2. A British cutter, based on the lines of the yacht *Volante* of 1851 in Stephens (op. cit.) p. 71. La = 65 feet. Lb = 50 feet. D = 8 feet. Beam = 15 feet. Tonnage by American formula = 71; by British = 49. (Strictly speaking, *Volante* falls outside of the period in which B.O.M. was register tonnage in Britain; however yachts were still being rated by the Old rule at that time).

depth in each case, the differences are practically negligible; for, although theoretically a raked stern-post would still be advantageous under the British formula, in practice builders were reluctant to carry this to an extreme in the larger classes of vessel both for structural reasons and because they would be delivering more 'ship' under the contract than they were being paid for.

On both sides of the Atlantic, of course, with two- or three-decked vessels the rules encouraged deep, narrow hulls in which hold space was at a maximum but legal tonnage at a minimum. This was early recognized as undesirable from the standpoint of sailing qualities, and a committee was appointed in England in 1832 to study the question. After two years of deliberation and measuring sample vessels, a method proposed by a Mr.

Riddle of the Royal Hospital, Greenwich, was recommended to Parliament and duly enacted[12] in 1835 to go into effect in January 1836. It was a curious combination of precise and rule-of thumb measurements. When measuring for registry the hold had to be cleared and the following procedure employed:

> Divide the length of the upper deck between the after part of the stem and the forepart of the stern-post into six equal parts. *Depths*: At the foremost, the middle, and the aftermost of those points of division, measure in feet and decimal parts of a foot the depths from the under side of the upper deck to the ceiling at the limber strake. In the case of a break in the upper deck, the depths are to be measured from a line stretched in a continuation of the deck. *Breadths*: Divide each of those three depths into five equal parts, and measure the inside breadths at the following points videlicet, at one-fifth and at four-fifths from the upper deck of the foremost and aftermost depths, and at two-fifths and four-fifths from the upper deck of the midship depth. *Length*: At half the midship depth measure the length of the vessel from the after part of the stem to the forepart of the stern post; then to twice the midship depth add the foremost and the aftermost depths for the sum of the depths; add together the upper and lower breadths at the foremost division, three times the upper-breadth and the lower breadth at the midship division, and the upper and twice the lower breadth at the after division, for the sum of the breadths; then multiply the sum of the depths by the sum of the breadths, and this product by the length, and divide the final product by three thousand five hundred, which will give the number of tons for register.
>
> If the vessel have a poop or half deck, or a break in the upper deck, measure the inside mean length, breadth, and height of such part thereof as may be included within the bulkhead; multiply these three measurements together, and dividing the product by 92.4, the quotient will be the number of tons to be added to the result as above found.
>
> In order to ascertain the tonnage of open vessels, the depths are to be measured from the upper edge of the upper strake.[13]

Thus for the first time certain deck erections were included in the tonnage figure. The divisors 3500 and 92.4 were chosen to bring the average tonnage of vessels as measured by the new rule to the same figure as the average tonnage measured by B.O.M.; obviously individual vessels would show considerable variation above and below the average, and builders soon found ways to arrange that this variation would be well on the low

[12] 5 and 6 Wm. IV., c. 56; re-enacted in 8 and 9 Vict., c. 89. The quotations are from *A Practical Digest of the Law of Merchant Ships* (London: Pelham Richardson, 1847), pp. 16-22.

[13] When measuring for purposes other than registry, the hold being encumbered with cargo, the following rule could be used: 'Measure first the length on the upper deck between the after part of the stem and the forepart of the stern-post; secondly, the inside breadth on the underside of the upper deck at the middle point of the length; and, thirdly, the depth from the underside of the upper deck down the pump-well to the skin; multiply these three dimensions together, and divide the product by one hundred and thirty, and the quotient will be the amount of the register tonnages of such ships.' To this the tonnage of any poop, etc., as found by the rule previously quoted, was added.

side. By locally working thicker ceiling at the tonnage stations a reduction of ten per cent or fifteen per cent in register tonnage was obtained with insignificant reduction in hold capacity. A model with concave stem, raking stern and lean ends was evolved—the famous 'Aberdeen bow,'[14] which when built on existing vessels resulted in an increase in length and speed but a decrease in tonnage. An early example of an 'Aberdeen clipper' is illustrated in Fig. 3, which also shows graphically the locations of the tonnage measurements for the 1836 formula.

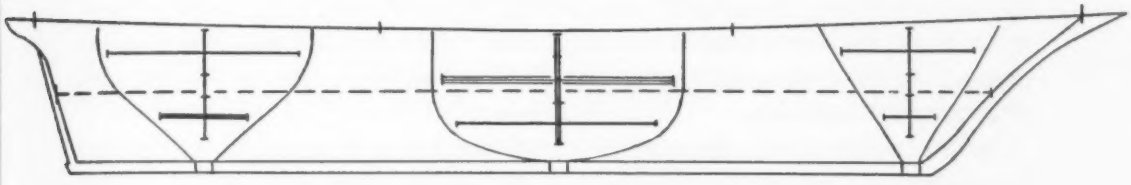

Fig. 3. The Aberdeen clipper model, based on the lines of the *Scottish Maid* of 1839 in *The Mariner's Mirror*, XXIX (1943) opp. p. 80. The depths and breadths from which the tonnage by the 1836 formula was computed are indicated by solid lines, the length by a broken line. Double or triple lines indicate measurements that were multiplied by two or three. Note that the lines are to the outside of the frames, the tonnage measurements inside the ceiling.

REGISTER DIMENSIONS:

1836 formula:	92.4 x 19.3 x 11.7 feet.	142 tons
B.O.M. (pre-1836):	91′ 6″ x 19′ 8″ x 9′ 10″	165 tons
United States formula:	94′ 5″ x 19′ 8″ x 11′ 8″	200 tons

Remeasurement of vessels already registered under B.O.M was not made obligatory in 1836, although owners were free to apply for remeasurement to take advantage of any reduction in tonnage that the new rule might give them; they were not compelled to remeasure unless an alteration in dimensions was caused by rebuilding. Hence for many years *Lloyd's Register* and shipping documents had to distinguish between 'old' and 'new' tonnages.

The 1836 law made a special provision for steam vessels. Steamers had already been recognized in Britain in 1819 when by Act of Parliament the length of the engine-room was permitted to be deducted from the keel length before making the computation for B.O.M., and a similar clause was incorporated in the later act:

> Measure the inside length of the engine-room in feet and decimal parts of a foot from the foremost to the aftermost bulkhead, then multiply the said length by the

[14] *The Mariner's Mirror*, XXIX (1943), 66-91; XXX (1944), 194-199.

depth of the ship or vessel at the midship division as aforesaid, and the product by the inside breadth at the same division at two-fifths of the depth from the deck, taken as aforesaid, and divide the last product by 92.4, and the quotient shall be deemed the tonnage due to the cubical contents of the engine-room.

This engine-room tonnage was to be deducted from the total tonnage of the steamer as found by either of the rules previously described, and the remainder was deemed the true register tonnage. It will be observed that not only was the deduction based on a block with the length, breadth and depth of the actual space, a particularly generous allowance in a vessel with dead rise; but also a further evasion could be arranged for by separating the boilers from the engine-room with a cargo space that was exempted from measurement because it lay between the 'foremost and aftermost' bulkheads.

At this point in the discussion of register tonnage it might be well to point out a widespread and serious error that has been repeated by many students of maritime history. For example, in discussing clipper ships, E. J. Reed, the leading British naval architect of his day, wrote:[15]

Before 1854 the pernicious influence of our tonnage laws led to the prevailing type of English vessels being narrow and deep, with flat straight sides and full bottoms. . . . While our shipping was about this point at its worst, a type of ship came into existence at New York, which multiplied rapidly in America, and became well known afterwards as the celebrated American clippers. Although put together very cheaply, they were designed on correct principles, unfettered by tonnage laws. . . .

And similarly G. L. Watson, the noted British yacht designer, wrote:[16]

Builders of the mercantile marine . . . were building vessels with enormously increased length and reduced beam, though it is true the slowness of these ships did not invite imitation, as the American clipper ships, built under a fairer tonnage law, were rapidly sailing them off the seas.

Now, as we have seen, the facts of the case are just the opposite. After 1836 the British tonnage law allowed at least an approximation of a correction (if not an over-correction) for sharp-modeled hulls, while until 1864 the United States formula was still based solely on length and beam. The clipper type was developed in America in spite of an antiquated tonnage law, not because of a fair one.

The opportunities for evasion of the 1835 Act led to the appointment in England in 1849 of another commission to investigate tonnage. It reported in 1850 in favor of external measurement; but this was considered to be too difficult of accomplishment, particularly on a vessel afloat, to be

[15] *Naval Science*, II (1873), 266.

[16] Badminton Library, *Yachting* (London, 1894), I, 52.

practical in service, and moreover by encouraging light scantlings, especially in wooden hulls, would have undone the work of *Lloyd's Register* and the other classification societies. Parliament therefore declined to adopt the report, and included instead in the great Merchant Shipping Act[17] of 1854 a measurement system worked out by the naval architect George Moorsom, who had been secretary to the 1849 commission. The Moorsom System remains to this day the foundation of the tonnage registry laws and measurement rules of the maritime nations of the world, as well as of the Suez and Panama Canals.

The basis of this system is the use of the Simpson or parabolic rule to calculate the transverse areas of the interior of the ship below the *tonnage deck* (defined as the second deck from below in vessels with three or more decks to the hull; otherwise the upper deck) at an *odd number* of equidistant sections, by means of widths measured at an *odd number* of equidistant depths at each section. The same rule is then used to compute the interior volume from the areas.[18] The volumes of enclosures above the tonnage deck are determined separately and the sum of all the volumes is finally divided by 100 to obtain the tonnage; that is, 100 cubic feet (2.83 cubic meters) equals a register ton. The choice of this divisor followed the precedent established with the 'new measurement' of 1836, the number being chosen 'in order to bring out . . . as nearly as may be the aggregate of the nominal tonnage of former laws, so that the statistical tonnage of the kingdom should remain unaltered, as well as all revenues which, from early times, may have been founded on that standard.'[19] By carefully measuring a selected series of vessels, Moorsom deduced that there was 363,412,456 cubic feet in the ships of the British merchant marine, which totalled 3,700,000 register tons;[20] hence a ton was 98.22 cubic feet or for convenience, 100.

As an alternate rule for vessels encumbered with bulkheads or cargo, Moorsom measured the girth from the upper deck at each side at the widest part of the vessel, the breadth outside at the widest part, and the length on the upper deck from the rabbet of the stem to the rabbet of the

[17] 17 and 18 Vict., c. 104, sec. 20-29.

[18] The area of a curvilinear space is found by 'dividing the base into a suitable *even* number of equal parts, erecting perpendicular ordinates from the base to the curve, and after measuring off the lengths of these ordinates, to the sum of the end ones add four times the odd and twice the even ordinates. The total sum multiplied by one-third the common interval between these ordinates, will produce the area.' G. Simpson, *The Naval Constructor* (4th ed., New York, 1918), pp. 1-2. The areas at each section having been found, they are treated as ordinates in the same way, and integrated along the length to yield the volume. The formula is exact when used with a parabola (or rectangle); with other curves its accuracy increases with the number of measurements taken.

[19] Reed, quoting Moorsom, in *Naval Science*, I (1872), 393.

[20] Johnson, p. 45.

stern-post. His *Rule II* then added half the girth to half the breadth, squared the sum, and then multiplied this by the length. The product was multiplied in turn by the factor .0017 for wooden or composite ships or .0018 for iron (or steel) ships,[21] and the answer was the tonnage under the upper deck.

The Merchant Shipping Act of 1854 also firmly established the principle that to find the official registered or *net* tonnage there was to be deducted from the total or *gross* tonnage as found by either of the rules just described the contents of certain spaces whose existence it was deemed necessary to encourage. The chief such space is that occupied by the propelling power of steamships, and the history of its measurement requires examination in some detail. The 1819 and 1835 laws, as we have seen, had made allowances for the engine-rooms of steamers, and the 1854 law went still further in granting what was, in effect, a subsidy to steam navigation. Establishing what is now known as the *Board of Trade*[22] *Rule* the act provided that if the actual engine, boiler and shaft alley space (in a screw vessel) was between 13 per cent and 22 per cent of the total tonnage, 32 per cent of the gross tonnage should be deducted as the allowance for the machinery. (In a paddle vessel the limits were 20 per cent and 30 per cent and the deduction 37 per cent.) In the cases of vessels with engine-rooms outside these limits, the flat percentages of 32 (or 37) were to be deducted if both the owner and the Board agreed; otherwise 1¾ the actual space was deducted for a screw vessel (1½ for a paddle vessel). Since, in practice, if the engine-room is on the small side, the Board does not agree, and if it is on the large side, the owner naturally will not, the flat percentages are not used outside the limits mentioned. The object in permitting a larger space to be deducted than actually occupied by engine and boilers was to allow for the fuel carried, and to adjust inequities between vessels with permanent and those with temporary bunkers.

This section of the law was not of Moorsom's origination, but was formulated by Admiral Beechey, advisor to the Board of Trade. Moorsom was in favor of using the same method as adopted in the 1835 act, fortified by a clause providing for independent measurement of the separate sections in case of a divided engine-room, with only the actual total space to be deducted. Agitation in favor of such a change being without effect on Parlia-

[21] These factors seem to have been adopted in 1858 (Johnson, p. 292); I have been unable to find those originally proposed by Moorsom in 1854. Apparently no provision has ever been made in Rule II for concrete ships. Rule II is used by the Suez and Panama Canals and by most maritime countries except the United States and Panama. Its use in Britain for registry is now limited to yachts below 50-foot length, when it is not possible to apply Rule I.

[22] The administration of the measurement and registry of vessels under the 1854 Merchant Shipping Act was first vested in H. M. Commissioners of Customs, but was in 1872 transferred to the Board of Trade.

ment, the Commissioners of Customs in 1860 made this alteration in the rule themselves, under a section of the 1854 act that empowered them to 'make such modifications and alterations as from time to time become necessary in the tonnage rules.' As in 1836, the new arrangement favored vessels with rising floors, and vessels with narrow engine-rooms adjoining longitudinal bunkers. The City of Dublin Steam Packet Company, owning steamers with transverse bunkers and engine-rooms fitted the full width of the hull, went to court and in 1866 obtained a ruling that the Commissioners had exceeded their authority. The percentage rule of 1854 has thus remained in effect in Britain from 1866 to the present day, and has been adopted in many other countries, although attempts to change it have not been without influence.

It was next suggested to Parliament that the flat percentage deductions be eliminated, and that all screw vessels be allowed a deduction of 1¾ of the actual space (1½ for paddle vessels), with a maximum deduction of 50 per cent of the gross tonnage, except in tugs. This rule was adopted in 1871 by the European Commission of the Danube, and hence is now called the *Danube Rule*; it was adopted at the Suez Canal in 1874 (with the option of measuring and deducting only the actual bunker and machinery spaces in ships with fixed bunkers); but it was ignored by Parliament. In 1871 the Board of Trade introduced a bill to deduct actual measurement of machinery and bunkers, limited to 50 per cent of the gross tonnage; this rule, likewise ignored by Parliament, was adopted in 1873 by Germany, remaining in effect there until 1895, and hence is called the *German Rule*.[23]

In 1881 a Royal Commission again investigated tonnage and recommended adoption of the Suez combination of the Danube and German Rules; again no legislative action resulted. The Commission pointed out that the Board of Trade Rule might result in a net tonnage of zero; thus the tug *Clyde* of Greenock was registered as *minus* 4.64 net tons, and occupied spaces in harbors and docks without incurring any dues or charges. Committees in 1906 and 1907 made the same finding, and finally in 1907 the propelling power deduction of British vessels was limited to 55 per cent of the gross remaining after all other deductions were made. This act, in the case of vessels built or ordered before 1 May 1907, did not come into effect until 1 January 1914. Tugs are exempted, except when employed in the carrying trade or using dry-docks.[24]

One other phase of the engine-room deduction question should be con-

[23] Johnson, pp. 130-133; Reed, *Naval Science*, III (1874), 260-264.

[24] Johnson, pp. 133-134, 273, 481.

sidered before leaving the subject. In 1879 the London & Northwestern Ry. Co., owners of the steamer *Isabella*, obtained a court decision ruling that although the engine-room skylight space above the upper deck was not included in the gross tonnage, it should be counted as part of the engine-room in determining the space eligible for deduction. This verdict resulted in an amendment to the Merchant Shipping Act in 1889 prohibiting deduction from the gross tonnage of any space not included in finding the gross tonnage, but allowing any part of the skylight space above the engine-room to be included in the gross as part of the machinery space at the owner's option.[25] In practice, most medium-powered steamers measured under the Board of Trade Rule are designed to have an engine-room just over 13 per cent of the gross, in order to qualify for the full 32 per cent deduction, and it is often convenient to include all or part of the engine-room skylight in the gross to bring the total engine-room space over 13 per cent.

The only *deduction* from gross tonnage to obtain the net register provided in the Merchant Shipping Act of 1854 was the engine-room. Therefore for some years the gross and net tonnages of a British sailing ship were identical. *Exemptions*[26] from gross tonnage were allowed for above-deck accommodation of the crew up to one-twentieth of the remaining tonnage, and for any shelter for deck passengers that was approved by the Board of Trade. In 1867 a new Merchant Shipping Act *deducted* from gross tonnage all spaces occupied by the crew, wherever located. The decision in the *Isabella* case in 1879 required the Board of Trade both to exempt the crew space up to one-twenty-first of the total, and to deduct the total crew space from the remaining gross. In 1889 Parliament repealed the crew space clause of the 1854 act. The effect of the 1867 law was to bring the crew's quarters below decks, particularly in vessels habitually carrying heavy cargoes, such as copper ore and coal, freeing the shipowner from charges he would otherwise have to pay on space needed for buoyancy. Other spaces not available for cargo and passengers have been added from time to time to the list of deductions, such as master's accommodations, chart house, water ballast not in double bottoms, sail locker, radio shack, etc. Exemptions have also multiplied: double bottoms not used for fuel or cargo, hatches up to one-half per cent of the gross tonnage, and various other enclosures above the upper deck.[27]

[25] Johnson, p. 134.

[26] There is an analogy in many respects between *deductions* and *exemptions* from *gross tonnage*, and *deductions* and *exemptions* from *gross income* under United States income-tax laws.

[27] Blocksidge, pp. 29-47; Johnson, p. 172.

(To be continued)

Mutton Spankers and Ringtail Topsails

BY CAPTAIN P. A. McDONALD

THE leg o'mutton spanker was a simple rig, and quite popular on the West Coast. Figure 1 shows a typical arrangement with ringtail topsail over it. The spanker luff or hoist is bent to mast hoops, the clew and tack to their proper places, and the foot stops tied underneath the boom. Also shown in the drawing are the approximate positions of sheet, clew-band, lift and lift-band, and the standing and hauling parts of the ringtail sheet. The hauling part of the latter passes through a block in the boom as shown, through a fair-lead under or nearly under the boom, and makes fast to a pin at the jaws of the boom. The ringtail sheet is entirely outside the lift, so only the tack of the sail has to be dipped in going about.

There is a heavy sheet-band and bale under the boom for the upper sheet block to travel on; also a separate bale or strop into which the boom tackle is hooked. Beside the sheet and boom tackle there is a spare tackle or heavy rope to steady the boom with while the boom tackle is shifted or unhooked. When on the wind, the tackle hooks into the lee-rail and with wind abaft the beam the boom is winged out and boom tackle hooked into a long pennant that leads outside of the spanker rigging and hooks into the topgallant bulwarks, down on the main deck. To prevent it from unnecessary wear, the boom tackle is usually hooked underneath the boom in fine weather and steady winds and when sailing 'by the wind.' With wind free and the sheets slacked off it becomes necessary to use boom tackles, though.

In setting the spanker the procedure is very simple. Cast off the gaskets, man the halyards and hoist away, ease off the sheet to its required angle, and stretch the sail up, if necessary, by means of a purchase, usually on the opposite side of the ship from the hauling part of the halyards. In case the sail is reefed the reef-points are cast adrift first, the reef-earing last, before hoisting away.

The ringtail is a fine weather sail and one does not tack or jibe with such a sail except in moderate winds. In tacking, the force of the wind on

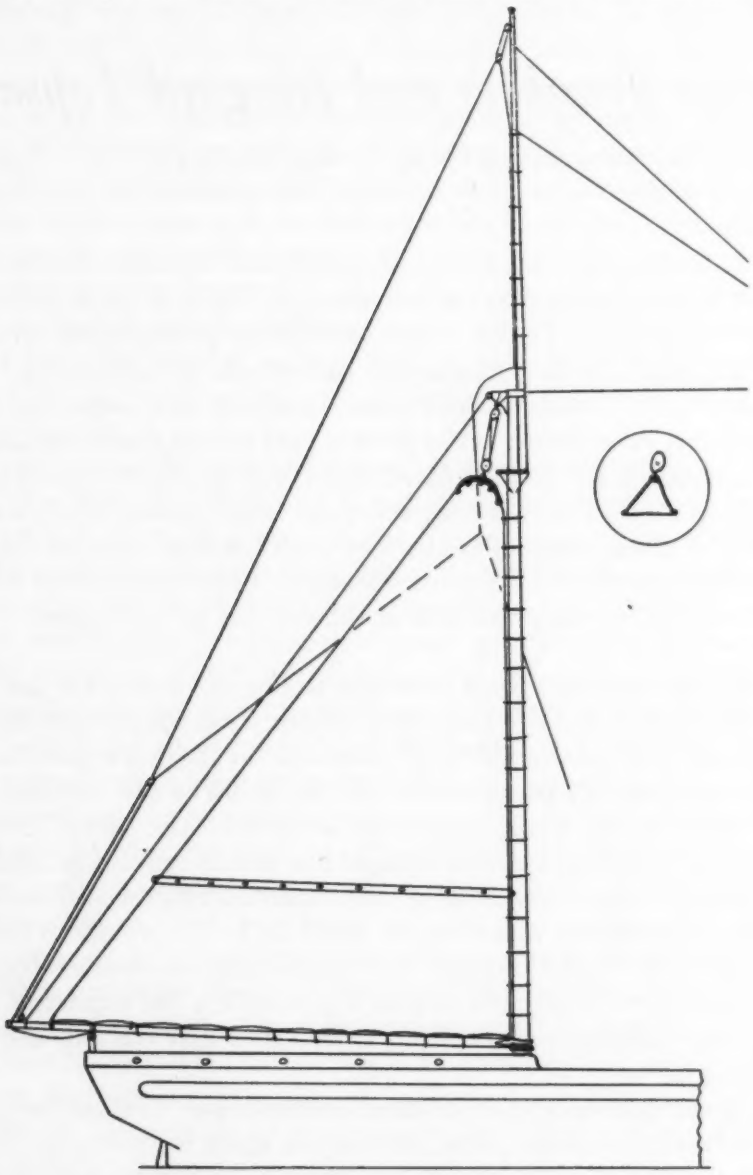

Fig. 1. Leg of mutton spanker and ringtail topsail.
Inset: alternate type of head iron or triangle.

the upper and larger portion of the sail will usually drag the remainder of the sail across the lift, and all a man needs to do is to throw the tack or

tacks across the lift and haul taut on the opposite side. Sometimes, though, one has to take the tack out on the end of the boom and dip it over the lift.

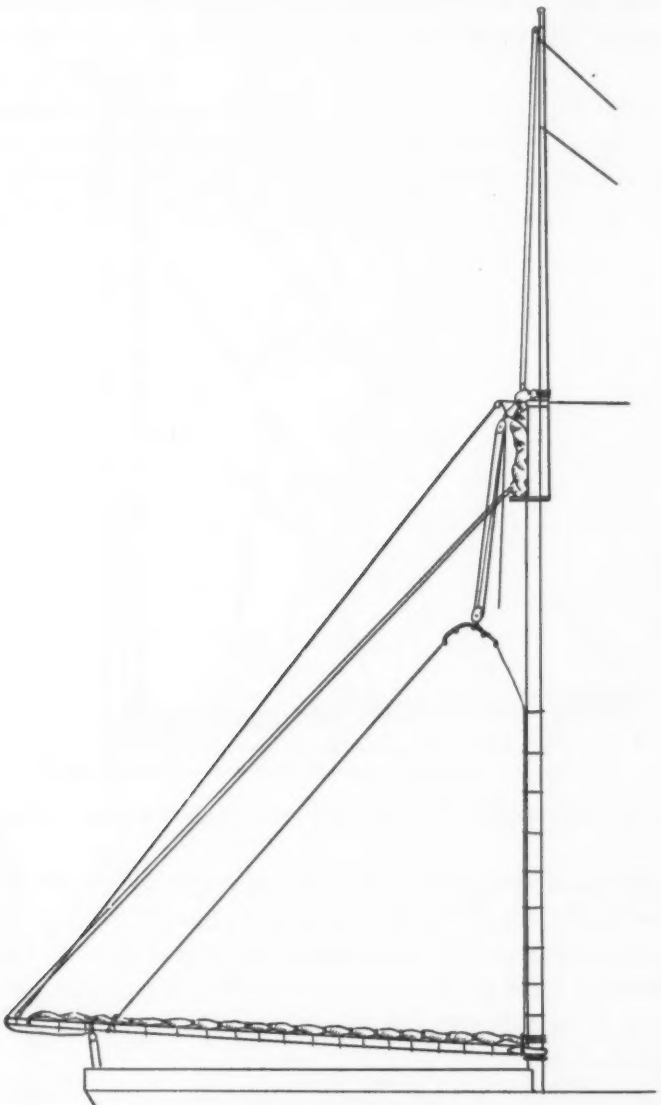

Fig. 2. Topsail furled and spanker reefed.

There are two short foot-ropes or 'Flemish horses' on the spanker-boom for such or similar purposes. With the wind aft and boom winged out well over the lee-rail it becomes necessary for a man to take the tack up into the crosstrees to dip it over the lift.

A ringtail clews up and furls like a gaff-topsail. This entails lowering away on the halyards to a point two or three feet above the lower masthead, making fast the halyards, and clewing up the sail to the mast doublings or into the cross-trees.

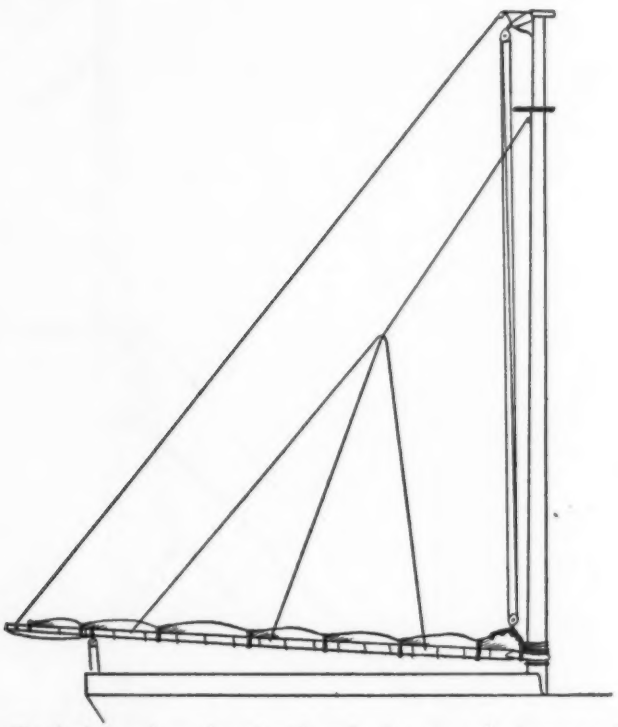

Fig. 3. Furled spanker, showing lazy jacks as used on some schooners.

Figure 2 shows the ringtail furled and the spanker reefed. When reefing, the sail is lowered and the reef-earing is passed. The canvas below the reef-points is rolled as snugly as possible and the reef-points are tied, also the tack lashing. I have tried to show how the reef-points tie around the reefed portion of the sail and the foot, rather than around the boom as do the foot-stops.

In taking in a sail of this type, let go of the purchase and also of the halyards while some of the crew are hauling in on the spanker sheet. Some schooners have a bridle on each side of the boom as shown in Figure 3 so that when the halyards are let go by the run the sail will land in the bight of the bridle instead of over the lee-rail. This bridle is sometimes called 'lazy jacks', sometimes 'slab lines.' After the sail is lowered down for mak-

ing fast a neat roll of the sail is made and rolled tight on top of the boom, where it is secured by several turns of flat canvas gaskets or ropes as the case may be. In order to keep the sail from sagging down off the boom a blind turn is first taken around the boom with the gasket, thus preventing slipping or rendering.

In bad weather at sea one does not attempt this harbor stow but simply makes use of two ropes, working from the middle toward both ends. Either way, after the sail is fast, a few turns of a rope are taken for a throat lashing, and hauling taut the halyards completes the process.

Notes

Dr. Willem Voorbeijtel Cannenburg

A newspaper item datelined Eindhoven, Holland, 12 April 1945, carried the news of the death of Willem Voorbeijtel Cannenburg, Director of the Dutch Historical Maritime Museum. He was identified as one of the ten murdered Hollanders whose bodies were found by Canadian soldiers at the Diepenveen Camp. From the sparse data available in this country, the Netherlands Information Bureau has supplied the following brief outline of his life and career. Perhaps after the war a complete account of Dr. Cannenburg's great contributions in collecting and preserving maritime records and memorabilia can be written.

Mr. Voorbeijtel Cannenburg was born on 15 May 1883 in Deventer. He married 2 February 1915 Joanna Diderica Wttewall Houten. Children: Willem, born 12 April 1916, and Antonia Etta, born 24 May 1919. From his sixteenth year on, he was trained as a naval officer in which capacity he served from 1903-1920. From 1916-1920 he was Chief of the Staff (Cabinet) of the Commander of the naval forces in the Indies. In 1922 he was appointed Director of the Netherlands Historical Maritime Museum. This museum was the further development of the historical section at the First Netherlands Maritime Exhibition of 1912 in Amsterdam (E.N.T. O.S.).

The museum was founded in 1916 and opened by Her Majesty the Queen in 1922. The museum obtained important acquisitions from private foreign and national collections. Thanks to the great efforts of Mr. Voorbeijtel Cannenburg, many unique fifteenth-and sixteenth-century maps and globes were brought back to the Netherlands. He made the museum one of the outstanding collections of the world.

Mr. Voorbeijtel Cannenburg was officer in the Tftikhar-order and officer of the 'l'Ordre du Merite Maritime.' He was awarded the expedition cross of the Small Sunda Islands 1905-1909 and the officers cross for fifteen years service with the Dutch Marines. He held executive functions in various historical, geographical and maritime societies, such as the Royal Geographical Society, the commission of Naval History of the Royal Academy of Sciences, Amstelodamum, etc. Moreover, he was commander of the Mari time training college.

VERNON D. TATE.

Yorktown

September-October 1781

The decisive influence of naval power in winning the Revolution is clearly portrayed in an impressionistic view of the joint land and sea situation about Yorktown in the autumn of 1781 in the collection of the Library of Congress.[1] It represents the fruition of the naval strategy of General Washington who had pleaded earnestly since 1778 for a strong French fleet to act in concert with his army.

When the large French army under Rochambeau had arrived at Newport in 1780, Washington would not then employ it actively because no fleet was available. He contended formally to the French general that: 'In any operations, and under all circumstances, a decisive naval superiority is to be considered as a fundamental principle, and the basis upon which every hope of success must ultimately depend.'

Washington never receded from this position. Over and over again for nearly three years he had pleaded for decisive naval support, maintaining that it 'was the pivot upon which everything turned,' that 'whatever efforts are made by land armies, the navy must have the deciding vote in the present contest,' and many similar expressions. His superlative wis-

[1]The Naval Historical Foundation has arranged to reproduce this contemporary tinted French engraving, by kind permission of the Library of Congress from an original in its collection. The reproduction will be in colors, full size 18″ by 24″, and will be placed on sale. Details are announced in the Advertisement section of this issue. Captain Knox has kindly made this note on Washington's grand strategy, which will accompany the reproduction, available for publication here.—Editors.

dom and judgment in military-naval strategy was amply proved by the Yorktown campaign which won our War of Independence.

By means of fast frigates in the summer of 1781 Washington communicated with Admiral Comte de Grasse and arranged that the French fleet should sail from the West Indies to the Chesapeake in conjunction with the movement of the Franco-American army by land and water from north of New York to Yorktown, where the British army under Cornwallis had fortified itself. The safe transportation of the allied army by water from upper Chesapeake Bay to Jamestown was contingent upon naval protection by De Grasse against attack of the British fleet under Admiral Graves.

After a long march from the Hudson, Washington reached the head of Chesapeake Bay on 6 September and arranged for water transport in advance of news from De Grasse. The latter had arrived and anchored his twenty-eight ships of the line to guard the lower entrance to the Bay a week before. The troops that had been brought up in the fleet from the West Indies were immediately landed on the James River as a reinforcement to Lafayette, then confronting Yorktown. Some French ships were sent to the mouth of the York River to prevent the exit of British ships there that might interrupt Washington's projected movement down Chesapeake Bay to the James.

The British fleet of nineteen ships from New York approached the Chesapeake entrance on 5 September, the day before Washington reached the far northern end of that bay. Preferring to fight while underway, the Comte de Grasse went out to meet the British. Only the van ships fought one another east-southeast of Cape Henry, and the action was broken off towards sunset. Several days of calms or very light airs followed, during which the two fleets drifted nearly one hundred miles to the southward while within sight but out of gun-range of each other.

Finally on 9 September De Grasse took advantage of a favorable wind and made all sail for the Chesapeake. His principal mission was to support the operation against Yorktown and this necessitated protection of the movement of Washington's army down the Chesapeake. He could not risk allowing the faster British fleet to slip into Chesapeake Bay ahead of him, perhaps destroy a water-borne allied army and succor Cornwallis. Thus baffled, the British fleet returned to New York.

Meanwhile Washington had learned of the absence of the French fleet from Chesapeake Bay and accordingly delayed his water movement to Jamestown until its return. With this indispensable protection renewed he then moved to Jamestown. When later he proceeded by land to the investment of Yorktown, Cornwallis became aware of the hopelessness of possible relief by sea and surrendered after very little fighting. Thus was Washington fully justified in his long sustained contention that a 'decisive naval superiority' to act in concert with his army was essential to bring victory to American arms.

DUDLEY W. KNOX

Additional Notes on Later History of American Sailing-Ships 'Sold Foreign'

The following notes are submitted in amplification of certain entries in Part x of Mr. Daniel R. Bolt's series, published in The American Neptune, v (1945), 147-155.

Brothers (Boston, 1847) was actually built at Mattapoisett, Massachusetts.

Lucy Harriet (Boston, 1847: actually East Boston) should be *Lucy and Harriet*.

Harmonie (Medford, Massachusetts, 1846) was originally *Monterey*.

Pauline (New Bedford, Massachusetts, 1831) was originally *Gideon Howland.*

Blencathea (or *Blencathra*: Newburyport, 1848) was originally *Richard Cobden.*

Raduga (Newburyport, 1848) in 1863 went under the Hawaiian flag as *Iolani.*

Mary & Elsie (Newburyport, 1864) should be *Mary Alice.*

Sapphire was built at Newburyport in *1864.*

President (Waldoboro, Maine, 1860) was originally *Weston Meritt,* later *Dharwar,* later *Praesident.*

South Carolina (Williamsburg, New York, 1851) was originally a steam propeller.

Mindora (Richmond, New York, 1856) was originally *Elf.*

Johanne Auguste (Williamsburg, New York, 1864) was originally *Sea Queen.*

Guthenberg was a New Orleans cotton ship of 1092 tons, old measurement, built at New York in 1854 by Perrin, Patterson & Stack.

Pacific Slope was built at San Francisco in 1875 or 1876.

JOHN LYMAN

Documents

A Philadelphia Shipbuilding Contract of 1746

[From a document in the collection of Lieutenant John Lyman, U.S.N.R.]

Agreement for the New Ship 1746

I have Agreed with John Reynell to Build him a Hagg Boat Stern Ship or Vessell, to be Lanch'd at farthest the first of September next, & as much sooner as possible. To be in length of Keel Seventy four feet, in Breadth Twenty Six feet moulded. Twelve feet deep in the Hold from Plank to Plank. Four feet Eight Jnches high betwixt Decks. The Waist to be Three foot four Jnches. To have a Rise a baft the Mainmast of Sixteen Jnches, to Say the forepart of the Steerage to be Six foot high, to have a Rise on the Quarter Deck for Close Quarters if it be thought Necessary. To have a Top-Gallant Forecastle four foot or four foot & four Jnches high w^ch: the s^d. John Reynell shall like best. To have four Ports Spaced out below abaft the Mainmast regular with the Ballast Port a midShip, which will be the fifth, only the after Ports are to be Cut through. One Port on each Side in the forecastle Regularly Spaced with them in the Waist. As many in the waist on the main Deck as shall be thought Necessary & Proper by the s^d John Reynell. The Drift on the Quarter Deck to be at Pleasure & as may be thought Proper by the s^d John Reynell. All the Knees of the lower Deck, the Bolt holes are to be Bored with a full Jnch Augur. To have three good Whales. The Plank above the Whale & the Plank under the Whale with the Planks at the floor heads is to be of good four Jnch Oak Plank. The Second Plank under the Whale is to be three Jnch & a half. The floor is to be something more than thirteen foot wide. To have fourteen Inches Dead Rising, but to Rise not quick but very Slow. The Dead flat to be as fair [?far] Forward as possible to Admit of a Fair Enterance. To have all the rake if Possible in the Stemm. The Rake of the Stern Post four Inches to afoot & no more. The Narrowing of the Floor to diminish so Gradually as to make her a midling Body neither very full nor sharp. To find Masts Yards Long Boat & every other thing usual & to be Compleatly finish'd According to the Custom of the Port. She is to have a Round Bow & no Butts in the Quarter Deck or Sap in the upper Deck.

To have four pairs of Standers between Decks if thought Necessary. All the Running Plank to be full two & half Inch thick. And to have as many Hatch ways as shall be thought Convenient. The lower Deck is to be of two & half Inch Plank.

For which he is to give me Four Pounds & Tenn Shillings ℔ Tunn Two thirds to be Paid in Cash at the Usual times of Payment and the other third if I can without any inconvenience am to take in Goods if not am to have what Remains in Cash. The Lower Deck Beams are to Round Nine Inches. As Witness my hand In Philadelphia this Fourteenth day of Novemb^r. 1746.

JAMES WEST

Contributed by John Lyman.

Naval Punishments after the Abolition of Flogging.

The prohibition of flogging in the United States Navy by Act of Congress 28 September 1850 was not at first received with whole-hearted enthusiasm by either the enlisted or officer personnel. The chief fear of both groups apparently was the inability to control the time-honored practice of 'soldiering' and petty infractions of Navy or ship regulations. How Commander William H.

Gardner, captain of the U.S.S. *Vandalia* met the problem is interesting not only in itself but also because little or no other evidence on the subject is to be found.

The original 'Address' is contained in a manuscript book entitled 'Internal Orders, U.S.S. Vandalia,' recently presented to the Naval Historical Foundation by Lawrence Waters Jenkins, Esquire.

ADDRESS TO THE CREW

Men,

I have official information, since our arrival at this port, that the authority to punish with the Cat-o-nine tails is revoked by a recent Act of Congress.

On my own account, I regret this change for one reason only: to wit, that it puts upon me the necessity of devising some other mode of punishment as a substitute for one which I considered equally prompt and humane. You all know that I have exercised my authority to inflict punishment with the utmost moderation. There are amongst you many worthy, respectable men whom it has been my duty to protect against the unequal labor which worthless, lazy persons would impose upon them.

You know, also that the mission of a Man-o-war is one of benevolence and protection; that she is not to be a scene of riot and disorder. I caution you not to imagine that I have less authority than before to control misconduct though the means may be less convenient. I shall resort to solitary confinement on bread and water: to restraint in fatiguing postures; and, when necessary, to more forcible means of controlling violence. I shall order the Officer of the deck to employ some of these means when the duties of Watches are neglected. I shall require the strictest observance of respect and subordination. I shall visit the least sign of insolence with summary penalties; and, to restrain desertion, I shall require arms to be used with the best intent to kill. All this is announced to you for caution and wholesome advice: not to threaten or intimidate you. Only do your duty well, and I will be your faithful friend; but, while I live with authority to command, I will exact implicit obedience, and preserve the efficiency of the Ship intrusted to my charge.

———

Read in presence of the Officers and Crew at muster on the Quarterdeck, May 19, 1851.

Contributed by M. V. Brewington.

Queries and Answers

'SACCARAP.' Commander Morison's question, 'What, pray, was the Saccarap of the Salt Horse ditty-' (NEPTUNE, V, 166), although posed in a book review, has elicited answers from Dr. Philip H. Cook and Mr. Storer B. Lunt. Both agree that it is the old name of a part of Westbrook, Maine, near Portland. Mr. Lunt, referring to Mrs. Eckstorm's volume on Maine place names, cites various eighteenth-century spellings for Saccarappa Falls at Westbrook: Dr. Cook, coming down to more modern times, notes that Westbrook is presently famous for having produced Rudy Vallee. Nevertheless both subscribers agree that the old horse came to Portland Pier from Westbrook.

LIGHT VESSELS. In the Office of Naval Records and Library there are two sets of four elephant folio volumes without title-page but bearing a binder's title *U. S. Light House Establishment Portfolio 1862*. These volumes contain lithographs of some three hundred beautifully executed working drawings of the then most modern types of lighthouses, beacons, buoys, keepers' houses, light vessels, lamps, fog signal apparatus, tools, etc., in short, everything used by the Lighthouse Service from about 1856 to 1871.

The following plates contain drawings of light-vessels.

Plate 50. View of an Iron Light-Ship with three Lights.
Plate 51. View of First Class Light-Ship (*Nantucket*).
Plate 52. Body, Sheer, and Half-Breadth Plans of First Class Light-Ship (*Nantucket*).
Plate 53. Berth and Spar Deck Plans of First Class Light-Ship (*Nantucket*).
Plate 54. First Class Light-Ship (*Martin's Industry*).
Plate 55. Sheer and Half-Breadth Plans of First Class Light-Ship (*Martin's Industry*).
Plate 56. Deck and Body Plans of First Class Light-Ship (*Martin's Industry*).
Plate 57. Second Class Light-ship (*York Spit, Relief,* &c).
Plate 58. Detail Plans of Second Class Light-Ship (*York Spit, Relief,* &c).
Plate 59. Second Class Light-Ship (*Bishop & Clerks*).
Plate 60. Detail Plans of Second Class Light-Vessel.
Plate 61. Detail Plans of Second Class Light-Vessel.
Plate 62. Light Vessel Lantern (First Class).
Plate 62. *bis.* do
Plate 63. Light-Vessel Equipment—Lantern House.
Plate 64. Light-Vessel Equipment—Swinging Lamp &c.
Plate 65. Light-Vessel Equipment—Day Mark.
Plate 66. Light-Vessel Equipment—Mushroom Anchors &c.

Inserted but not regularly numbered are additional plates:

In set one, following plate 66:
'Specifications for a side-wheel steamer for the Light-House Service', printed 12 pages with black line print of inboard profile, deck and framing plans, body plans, and midship section. Table of offsets dated 1869 for the above steamer.

In set two:
'United States Light House Steam Tender *Iris*.' [Inboard profile, deck and framing plans.]
'United States Light House Steam Tender *Violet*.' [Deck plans only.]
'United States Light House Steam Tender' [not identified, dated 1871].

[Ditto Outboard-inboard profile, half-breadths, body and midship plans.]
[Ditto Sheer, half-breadth, and body plans.]
[Ditto Inboard and outboard profiles, decks and midship plans.]
'Proposed Tender for Pacific Coast.' [Inboard and outboard profiles, decks, midship. Brigantine rig, dated 1871.]

M. V. BREWINGTON

LIGHT-VESSELS. Concerning your request in the April issue of the NEPTUNE for information relative to early light-vessels I wish to submit the following affidavit.

> I certify that the Beacon-boat now called the Sloop *Discovery* was built for the Service of the United States about thirty years ago and condemned as not fit for the Service about eight years ago. That she was sold by Samuel Clarke, Esq., to Thomas Ash, from Ash to Conrad Baker and from Baker to Jacob Rush.
>
> February 1st, 1821. Joseph Hill.
>
> This boat has been masted, decked and measured by the Surveyor and licensed in the name of Jacob Rush. One deck, 26, 2/10′ x 9, 8/10′ x 3, 9/10′ and measures 8, 16/95 tons. Being a square stern'd sloop, no galleries nor figure (formerly a Beacon Boat) with one mast.
>
> February 1st, 1821
>
> From Carpenter's Certificates, Custom House, Phila, Pa.

Joseph Hill appears to have been the original builder of this sloop, she was apparently masted and decked after being sold by the government. License book No. 6 covering the period of 1821 for vessels under 20 tons is unfortunately missing from the files.

THOMAS HORNSBY

62. ANCHOR HOYS. Very complete plans of an anchor hoy, sloop-rigged, together with all its gear are among the Grice Papers in the collections of the Office of Naval Records and Library. These in somewhat simplified form were published in V. R. Grimwood, *American Ship Models* (New York, 1942). Plans of another hoy, a scow type, are in the library of the Franklin Institute, Lenthall Collection.

M. V. BREWINGTON

64. SHIP CRESCENT. In 1849 a group of men bought or charted the ship *Crescent*, 340 tons, built at Portsmouth, New Hampshire, in 1826. This ship sailed from Salem in December 1849 for San Francisco. I am about to print a series of letters written by a relative of mine who was one of the company during the voyage to San Francisco, and so am interested in any information that I can obtain in regard to *Crescent*, and its history. I am particularly anxious to get a picture of the ship if one exists.

GEORGE ATWELL RICHARDSON

65. SHIP ZOUAVE. Information is requested concerning the voyages of the ship *Zouave*, built at Richmond, Maine, in 1862, and particularly her history after the year 1887. Information concerning the whereabouts of logs of *Zouave* would be particularly appreciated.

EDWARD G. CURTIS

News

Mariners' Museum

Newport News, Virginia. Among several donations received at the Mariner's Museum recently are the steering wheel and gangway headboards of the U. S. S. *Michigan*, commissioned in 1844, the first iron warship of the United States Navy. The boards, which are excellent examples of carving, together with the wheel with brass star and leaf inlay, are exhibited with the scale model of the *Michigan* in the Main Room of the Museum.

A quarter-inch scale model of the American privateer schooner *Prince de Neufchatel*, built by the late Carroll Ray Sawyer, has also been added to the collection.

The library has acquired recently a manuscript folio volume entitled 'Voyage of HMS *Success* and HMS *Norwich* to Nova Scotia and Virginia in 1754-1756,' containing a full page detailed drawing of Yorktown as seen from the river.

Marine Historical Association

Mystic, Connecticut. A loan exhibition of the art of Lars Thorsen opened on 1 May, to continue until 8 July. It included eighteen oil paintings of ships, as well as etchings, watercolors and examples of sailor craft. Lars Thorsen, who was born in Stavanger, Norway, 20 November 1876, went to sea at the age of twelve in an Icelandic steamer, and then spent many years in sail. He has been mess-boy, sail-maker, rigger, Grand Banks fisherman and master. He is a self-taught artist. He began to paint while he was yet at sea, but it was not until he settled in Noank, Connecticut, forty years ago that he began to devote all his time to art.

Peabody Museum Marine Association

Salem, Massachusetts. No meeting of the Associates was held in January 1945. At the 23 April 1945 meeting John Leavitt of Marblehead read a paper on 'The River Plata Ships and Trade.'

Notes on Contributors to the American Neptune

Sidney G. Morse teaches at the Massachusetts Institute of Technology, Cambridge, Massachusetts.

Ralph Newell Thompson is on active duty as a lieutenant in the United States Naval Reserve.

Lieutenant Alexander Crosby Brown, U.S.N.R., Corresponding Secretary of The Mariners' Museum, Newport News, Virginia, in peace time, is on duty in the Office of Naval History, Navy Department, as an assistant to Commander S. E. Morison, U.S.N.R.

Lieutenant John Lyman, U.S.N.R., is on duty at Naval Proving Ground, Dahlgren, Virginia.

Captain P. A. McDonald is a retired shipmaster, now living in Seattle, Washington.

Book Reviews

CAPTAIN DUDLEY W. KNOX, U.S.N. (Ret.), Editor, *Register of Officer Personnel United States Navy and Marine Corps and Ships' Data 1801-1807* (Washington: Government Printing Office, 1945). 6″ x 9″, cloth, iv + 86 pages, 20 loose folding plates. $1.50.

Personnel and Ships' Data, to use the cover title, is uniform in format with the six volumes of *Naval Documents related to the United States Wars with the Barbary Powers* (THE AMERICAN NEPTUNE II, 341; III, 180) and is designed chiefly for reference in connection with that series. The first section lists alphabetically the commissioned and warrant officers of the naval establishment during the seven years, giving their duty assignments; but the usefulness of the material is limited owing to lack of nativity data or of any necrology save that of the short period treated.

The second section, dealing with the ships, is more thorough, since building and commissioning dates are given even if before 1801. There are brief resumés of each unit's operations from 1801 through 1807. More important are the physical details of the vessels, largely from the researches of Lieutenant M. V. Brewington, U.S.N.R. Agents, designers, builders and carvers are specified, along with costs, complement, battery and principal dimensions. Where available, spar drafts of each vessel are included. The twenty plates are from contemporary drawings in the National Archives and Library of Congress; mainly of hull lines, they show also some sail and accommodation plans and spar details. As a result there is presented here a more nearly complete picture of the United States Navy (which then included not only such well-known vessels as the *Constellation, Constitution, Essex* and *Enterprise,* but also bomb-ketches, lateen- or ketch-rigged gunboats, bombards and trabaccolos) at a given period before the Civil War than can be obtained from any other readily available source.

The appearance of such a volume in times like these is a credit to the Office of Naval Records and Library and to the Government Printing Office. The plates are amply large for the purpose, and although they are stated to have been made from photographs or tracings most of them are as clear as if engraved directly from the original drawings. The spelling 'geneologists,' the use of four different type styles in expressing vessel names, and the inadequate envelope for the plates are attributable to war-time production conditions.

Publication by the Navy Department of its official drawings for the benefit of model makers and other students of the history of naval architecture is an undertaking praiseworthy in the extreme and should be extended in future volumes to as near the present as military security will permit.

W. T. Baxter, *The House of Hancock, Business in Boston, 1724-1775* (Harvard University Press: Cambridge, Massachusetts, 1945). 5½″ x 8½″, cloth, xxvii + 321 pages, illustrated. $3.50.

The chance which brought the Hancock papers and account books to Doctor Baxter's attention was indeed a happy one. His profound knowledge of accounting and business methods, ancient and modern, together with his training as a historian are precisely the qualifications needed for the proper approach to the history of a business. It is through them and through them only that the peculiarities of trade and their significance in the economic development of the nation can be traced accurately. In whole or in part these qualifications were lacking in the authors of two books described as business histories recently reviewed in these pages, both of which in consequence fell to the level of hack writing.

The house of Hancock was not a very important business organization even in eighteenth-century America. There were doubtless many firms surpassing it in the volume of trade handled. Perhaps the mediocrity of the firm is its point of major importance to us since it enables Doctor Baxter to show clearly how the New England merchant conducted his business: his methods of financing domestic and foreign trade, how he kept his records, what commodities he dealt in, his trade routes, and the like. All these were greatly different in character from counterparts in business as it was conducted in the Southern and even in some of the Middle Colonies at the same period. Smuggling, something continually brought up against the Hancocks is given due treatment and its place as a New England business method is fixed, let us hope, permanently. The breadth of the activities of the colonial New England merchant is shown. For instance, Thomas Hancock was at first a bookseller and small publisher, but from the vast quantities of pork, beef, and lumber, to say nothing of whale oil and dried fish, which passed through his records, one might think (if unacquainted with eighteenth-century conditions and accounting) that he just carried a few books as a sideline in a general wholsesale business.

Although the book deals with bookkeeping and business methods, both usually considered extremely dry and uninteresting subjects, it is far from being so. Doctor Baxter writes with a light touch and a delightful humor. For those who want the details, almost every chapter carries one or more appendices which give all the cold hard facts one could desire in their original form. The high quality of the book is quite sufficient to make one forgive Doctor Baxter's habit of calling anything that floats, even if it could carry 10,000 bushels of wheat and twenty tons of hay, a boat.

Captain Alfred J. Green, *Jottings from a Cruise: Captain Green's experiences as recorded by him on the ill-fated voyage of the barque* Mertola. *Also his further adventures aboard the barques* Grassendale *and* William Tell (Seattle: Kelly Printing Co., Inc., 1944). 6″ x 9″, cloth, xv+260 pages, 12 illustrations, 6 facsimiles. Edited and with an introduction by Captain Green's son, Alan A. Green. $3.50.

This interesting little volume could be considered a pattern for the suitable handling of the many 'grandpa's' diaries which today repose in battered old trunks in the attics of houses in every seaport town in the country. The memoirs of British-

born Captain Alfred John Green (1851-1926) are probably not very different from those of many other professional mariners and, although the publication of this volume is not unique and certainly comprises no best seller, it constitutes a worthwhile addition to the so-called 'annals of the sea.' It is admitted that nineteenth-century shipmasters had to be resourceful and it is not surprising to have further confirmation that many of them were literate as well.

The Captain's voyages were as many and varied as one would surmise from his active career of thirty-five years' seafaring in both sail and steam. However, his son feels that his happiest memories were when, as master of the little British barque *Mertola*, he cruised leisurely along the coast of South America and up through the Caribbean. The account of this voyage and the ports visited are recorded in his daily 'jottings' from 23 February 1889 to 28 January 1890, which were originally published in the English *Nautical Magazine* and comprise the greater part of this book. In addition, however, Captain Green's son has included various letters written between 1888 and 1898 covering other adventures. All this material may be digested with pleasure and profit.